ECOLOGY AND ENVIRONMENT, INC.

DALLAS, TEXAS

MEMORANDUM

TO: Ed Sierra, RPO Region VI

THRU: K. H. Malone, Jr., FITOM KHM

FROM: Bradley Morris, FIT Geologist BAM

DATE: February 13, 1989

SUBJ: Preliminary Assessment for **KNUZ Radio Tower,** Houston, Texas. **(TXD987979275)**
TDD# F06-8812-22
PAN FTX0867PAA

X-Ref SA Vol 1

1. SITE INFORMATION

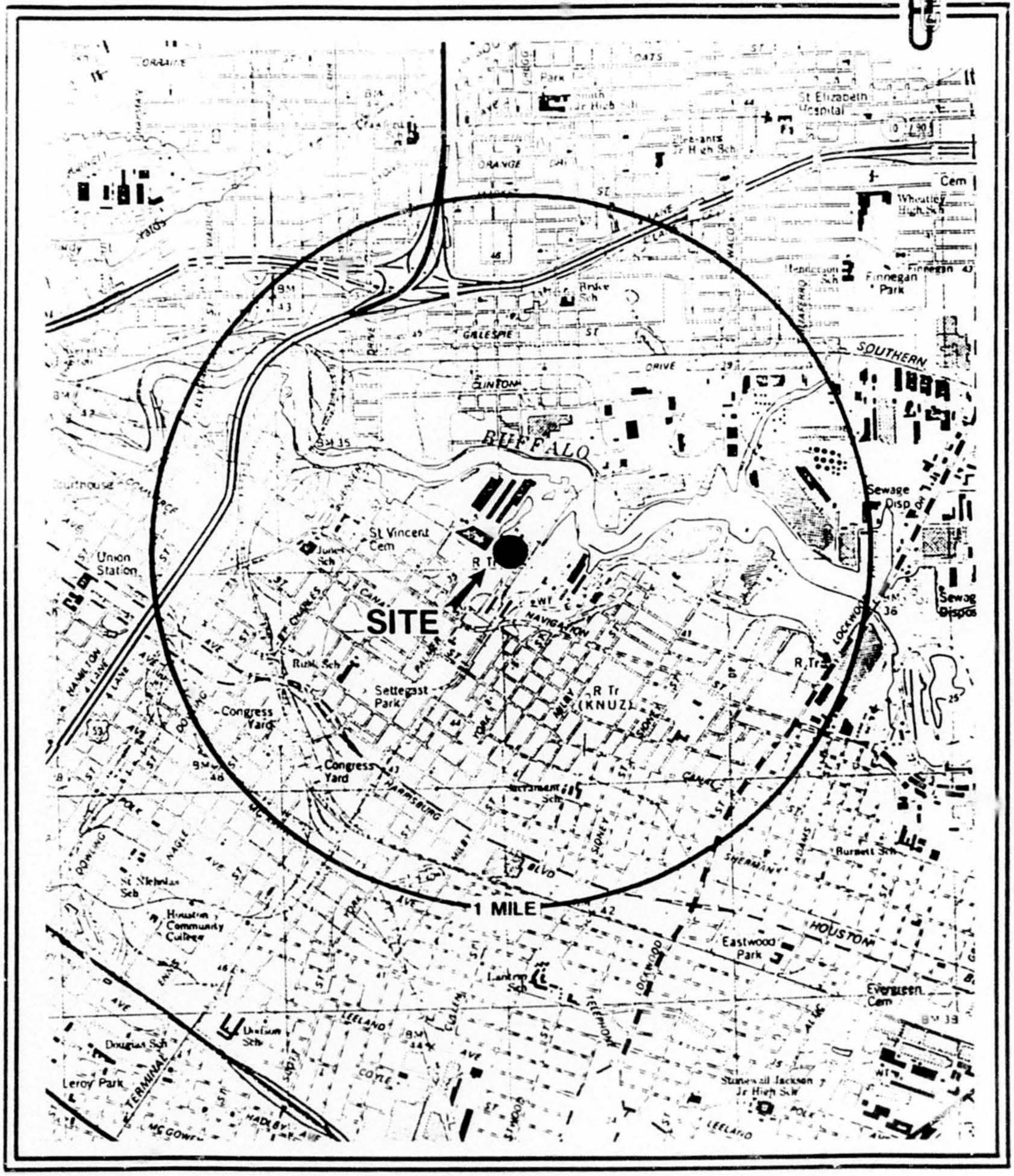
The KNUZ Radio Tower site is located at 315 North Ennis, Houston, Texas 77003. The geographic coordinates are Latitude 29°45'12"N, Longitude 95°20'48"W. The site is located approximately 1.5 miles east of downtown Houston, 3000 feet north of Buffalo Bayou, and diagonally across from Lead Products Company, Inc., 709 N. Velasco, Houston, Texas (Figure 1). The site is owned by Texas Coast Broadcasters - Clark Company, 2510 Times Boulevard, Houston, Texas 77005-3225. The site consists of a radio transmission tower, guywire anchors, and satellite dish (Figure 2).

2. BACKGROUND/OPERATING HISTORY

The site reportedly received discarded battery casings that were utilized as fill material from the nearby Lead Products Company facility. During the 1950s and 1960s, Lead Products Company contracted with the owner of the KNUZ Radio Tower property to provide these batteries (Reference 5).

Lead Products Company began operating as a lead smelting business in the 1930s. Lead was removed from discarded batteries and used to fabricate pipes and other equipment. After the lead was removed from the batteries, the battery casings were buried on the Lead Products property and the KNUZ Radio Tower site. The buried casings beneath the KNUZ Radio Tower site reportedly contain unknown quantities of lead residues (Reference 5).

The FIT conducted an off-site reconnaissance inspection on January 5, 1989. The site is surrounded by a chain link fence and secured by a locked gate. The site is nearly level and vegetated with weeds and grass (attached photographs).



N

0 2000 ft.

FIGURE 1
SITE LOCATION
CHILD'S TRUCK EQUIPMENT SITE
HOUSTON, TEXAS

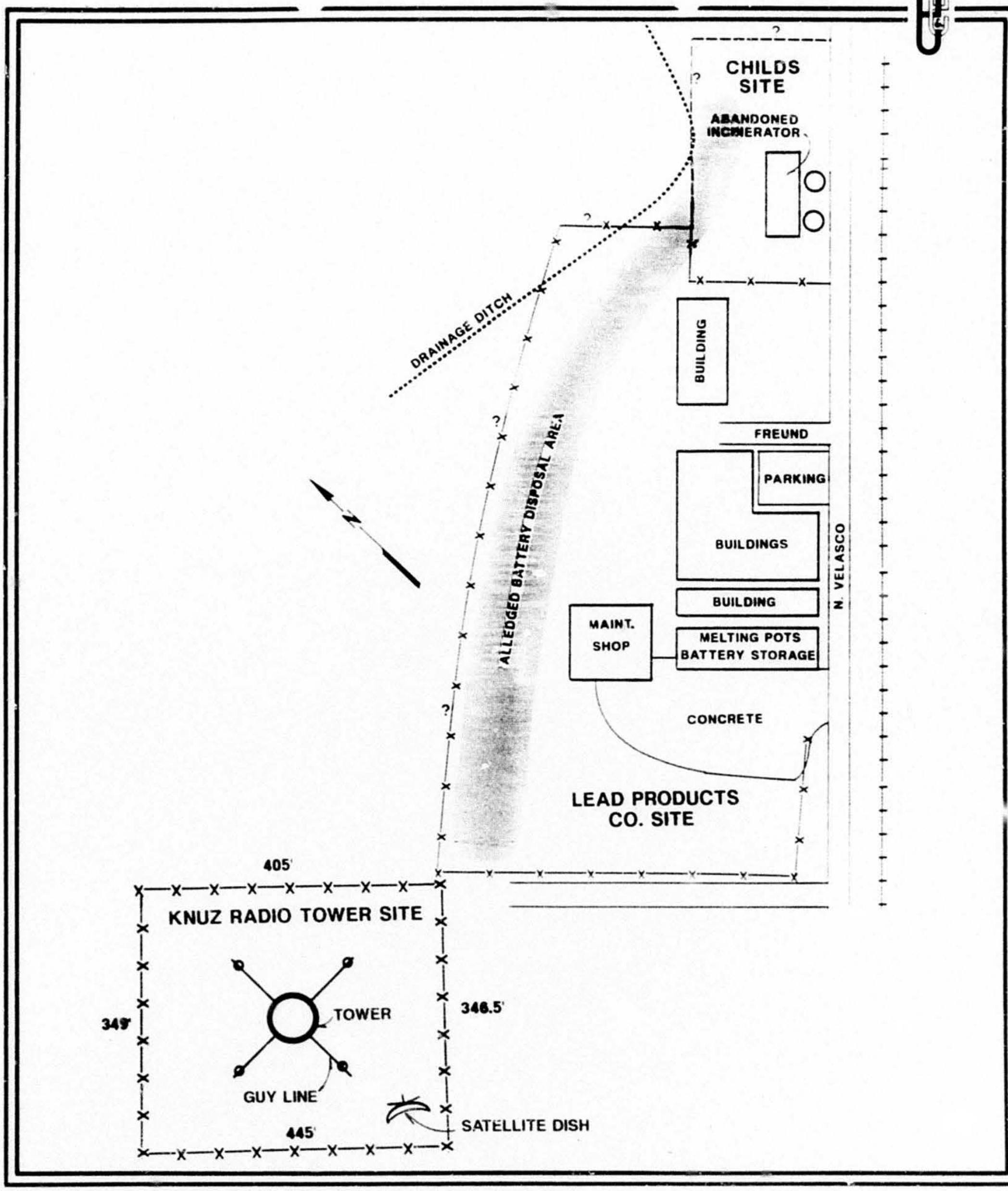


FIGURE 2
SITE SKETCH
KNUZ RADIO TOWER
HOUSTON, TEXAS
TXD987979275

NOT TO SCALE

3. WASTE CONTAINMENT/HAZARDOUS SUBSTANCE IDENTIFICATION

An unknown quantity of battery casings containing residual lead were buried at an unknown location at the site for approximately 15 years (Reference 5). There are no records of waste quantity. No information concerning waste containment is available. The battery casings are assumed to have been dumped into an unlined trench or pit and covered with soil.

4. PATHWAY CHARACTERISTICS

a. Air Pathway Characteristics. The gaseous and particulate mobility potentials at the KNUZ Radio Tower site are low due to the soil cover that was applied over the battery casings. Gaseous mobility is unlikely due to the nature of the contaminant (lead).

b. Ground Water Characteristics. The principal aquifers in the study area are the Chicot and Evangeline aquifers. The Chicot includes all sedimentary deposits from land surface to the top of the Evangeline Aquifer, approximately 1000 feet thick (Reference 3). The Chicot is composed of interbedded sands, silts, and clays of the Willis Sand, Bently and Montgomery Formations, and the Beaumont Clay. The underlying Evangeline aquifer, with an approximate thickness of 2000 feet, is the primary source of ground water in the study area. The Evangeline Aquifer is approximately 2000 feet thick in the study area and extends from the base of the Chicot to the underlying Burkeville confining layer (References 1 and 3). The Evangeline is composed of the Goliad Sand and Fleming Formation and is characterized by layers of sand and gravel with interbedded clay and silt layers (Reference 3).

The City of Houston utilizes a combination of ground water and surface water to supply drinking water to residents within 4 miles of the KNUZ Radio Tower site (Reference 7). Four City of Houston water wells are located within 4 miles of the site (References 1 and 8). These wells are screened in the Evangeline aquifer at depths of 580 to 1160 feet (Reference 1). Net precipitation in the City of Houston is -6.5 inches per year (Reference 2).

c. Surface Water Characteristics. Surface water drainage from the site presumably flows north toward a drainage ditch which ultimately flows into Buffalo Bayou (Reference 10). The distance from the site to the point of entry into Buffalo Bayou is approximately 2500 feet (Reference 8).

Buffalo Bayou flows east - southeast and enters a turning basin 4 miles downstream of the site. From this point to Galveston Bay, the bayou becomes the Houston Ship Channel. Surface water along the 15-stream mile drainage path is used for limited recreation, navigation and industrial cooling water (Reference 10). There is no drinking water use of Buffalo Bayou or the Houston Ship Channel (Reference 10). The size of the drainage area is approximately the area of the site, 3.5 acres

(Reference 8). The average annual stream flow for Buffalo Bayou is 320 cfs (Reference 13). The two-year twenty-four hour rainfall is 5 inches (Reference 2). The potential for flooding is minimal (Reference 14).

d. On-Site Pathway Characteristics. Residual lead is suspected to be present beneath the site at an unknown depth. The utilization of either a proper liner or runoff diversion control system is doubtful, due to the time period in which the battery casings were disposed.

5. TARGETS

There are at least four water wells that serve the metropolitan Houston area with drinking water (Reference 1). The City of Houston's water supplies are obtained from a combination of ground water and surface water from Lake Houston, located 17 miles northeast of downtown Houston (Reference 7). The total population served by municipal water supplies within four miles of the site is 281,700 (Reference 9). Primary surface water use of Buffalo Bayou is industrial cooling water. Buffalo Bayou is primarily a storm water outlet with limited use (Reference 10).

The site is surrounded by a fence, preventing public access to on-site disposal areas. Located within 0.25 miles of the site are several single family residences, parks, and commercial - industrial areas (Reference 8). There are no critical habitats of endangered species or sensitive areas within 15 miles downstream of the (Reference 11).

6. OTHER REGULATORY INVOLVEMENT

No evidence exists of any permits or regulatory action at the KNUZ Radio Tower site. The owners of the adjacent Lead Products facility are currently negotiating with the City of Houston Health - Engineering Department and the Texas Water Commission to design a remedial action program to recover lead from contaminated soils at the Lead Products' property (References 5 and 15). ENSR Construction is currently collecting soil samples for the identification of waste quantity and migration at the Lead Products Company site (Reference 15). Lead Products Company does not have any current plans to take action at the KNUZ Radio Tower site (Reference 5).

7. CONCLUSIONS AND RECOMMENDATIONS

The KNUZ Radio Tower site received discarded battery casings from Lead Products Company, Inc. during the 1950s and 1960s. The battery casings contained an unknown quantity of lead residues and were buried at an unknown location and depth. The battery casings are currently covered with soil and thick, grassy vegetation. The site is secured by a fence and locked gate.

The potential for surface water contaminant migration is minimal. The batteries are covered with soil and no obvious on-site surface water drainage pathways exist. Buffalo Bayou, which ultimately receives site runoff, is primarily limited to navigation and industrial water cooling uses. The potential for contamination to ground water is minimal. The aquifer of concern (Chicot Aquifer) is more than 500 feet deep. An alternate, unthreatened supply of drinking water is available within the study area.

The FIT recommends no further action at the KNUZ Radio Tower Site. Further information concerning the remedial cleanup at the adjacent Lead Products Company site is located in the Lead Products Company file.

vbt

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~~*****CONFIDENTIAL*****PRE-DECISIONAL DOCUMENT~~*****

PRESCORE ANALYSIS HRS SCORESHEET

Site Name: KNUZ Radio Tower Site
EPA ID No: TXD987979275
TDD No: F06-8810-22
City: Houston
County: Harris
State: Texas

Site Evaluator: Bradley Morris, FIT Geologist BAM
Region VI FIT (Title)
Date: February 13, 1989

POTENTIAL RELEASES

[ ] Ground Water
[ ] Surface Water
[ ] Air
[ ] On-Site/Direct Contact

SCORING SCENARIOS		Preliminary	Projected
GROUNDWATER ROUTE SCORE (Sgw)	=	12.93	15.51
SURFACE WATER ROUTE SCORE (Sw)	=	5.31	7.97
AIR ROUTE SCORE (Sa)	=	0	0
TOTAL SCORE (Sm)	=	8.08	10.08

NEW HRS MODEL CONSIDERATIONS

GROUNDWATER ROUTE: The ground water route was evaluated for a 4-mile radius. A total of 4 municipal drinking water wells were located. An alternate, unthreatened supply of drinking water is available.

SURFACE WATER ROUTE: The 15-mile down slope drainage pathway has no drinking water intakes and has limited use (recreational, industrial cooling water).

AIR ROUTE: The potential for release to air is very low due to waste being buried, covered with soil, and unknown waste quantity.

ON-SITE ROUTE: The site is secured by fence and lockable gate. No public access to disposed waste is obvious.

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*****CONFIDENTIAL*****PRE-DECISIONAL DOCUMENT*****
*****   GROUND WATER ROUTE WORKSHEET   *****

	Preliminary	Reference	Projected	Reference
1. OBSERVED RELEASE	0		0	
2. ROUTE CHARACTERISTICS				
DEPTH TO AQUIFER OF CONCERN (x2)	0	1	0	1
NET PRECIPITATION	1	2	1	2
PERMEABILITY OF UNSATURATED ZONE	1	3, 4	2	3, 4
PHYSICAL STATE	3	5	3	5
ROUTE CHARACTERISTIC SCORE	5		6	
3. CONTAINMENT	3	5	3	5
4. WASTE CHARACTERISTICS				
TOXICITY/PERSISTENCE	18	2, 5, 6	18	2, 5, 6
HAZARDOUS WASTE QUANTITY	1	5	1	5
WASTE CHARACTERISTICS SCORE =	19		19	
5. TARGETS GROUNDWATER USE (x3)	6	7	6	7
DISTANCE TO NEAREST WELL/POPULATION SERVED	20	1, 7, 8, 9	20	1, 7, 8, 9
TOTAL TARGET SCORE =	26		26	
(1x4x5) or (2x3x4x5) =				
GROUNDWATER ROUTE SCORE				
$\frac{(1x4x5) \text{ or } (2x3x4x5)}{57,330} \times 100$ =	12.93		15.51	

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*****CONFIDENTIAL*****PRE-DECISIONAL DOCUMENT*****
*****   SURFACE WATER ROUTE WORKSHEET   *****

	Preliminary	Reference	Projected	Reference
1. OBSERVED RELEASE	0		45	7, 10
2. ROUTE CHARACTERISTICS				
FACILITY SLOPE AND INTERVENING TERRAIN	0	8	0	8
1-YEAR 24-HOUR RAINFALL	3	2	3	2
DISTANCE TO NEAREST SURFACE WATER (x2)	4	8	4	8
PHYSICAL STATE	3	5	3	5
ROUTE CHARACTERISTIC SCORE	10		10	
3. CONTAINMENT	3	5	3	5
4. WASTE CHARACTERISTICS				
TOXICITY/PERSISTENCE	18	2, 5, 6	18	2, 5, 6
HAZARDOUS WASTE QUANTITY	1	5	1	5
WASTE CHARACTERISTICS SCORE =	19		19	
5. TARGETS SURFACE WATER USE (x3)	6	7, 10	6	7, 10
DISTANCE TO A SENSITIVE ENVIRONMENT (x2)	0	11	0	11
POPULATION SERVED/ DISTANCE TO DOWNSTREAM WATER INTAKE	0	7	0	7
TOTAL TARGET SCORE =	6		6	
(1x4x5) or (2x3x4x5) =				
SURFACE WATER ROUTE SCORE =	5.31		7.97	
$\frac{(1x4x5) \text{ or } (2x3x4x5)}{64,350} \times 100 =$				

*****CONFIDENTIAL*****PRE-DECISIONAL DOCUMENT*****

***** AIR ROUTE WORKSHEET *****

	Preliminary	Reference	Projected	Reference
1. OBSERVED RELEASE	0		0	
DATE AND LOCATION				
2. WASTE CHARACTERISTICS				
REACTIVITY AND INCOMPATIBILITY	1	6	1	6
TOXICITY (x3)	9	6	9	6
HAZARDOUS WASTE QUANTITY	1	5	1	5
WASTE CHARACTERISTICS SCORE =	11		11	
3. TARGETS				
POPULATION WITHIN FOUR MILES	21	9	21	9
DISTANCE TO SENSITIVE ENVIRONMENT (x2)	0	11	0	11
LAND USE	3	8	3	8
TOTAL TARGET SCORE =	24		24	
(1x2x3) =				
AIR ROUTE SCORE =	0		0	
$\frac{(1x2x3) \times 100}{35{,}100}$ =				

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Preliminary S_m WORKSHEET

	S	S^2
Groundwater Route Score (Sgw)	12.93	167.18
Surface Water Route Score (Ssw)	5.31	28.20
Air Route Score (Sa)	0	0
$Sgw^2 + Ssw^2 + Sa^2$		195.38
$(Sgw^2 + Ssw^2 + Sa^2)^{1/2}$		13.98
$(Sgw^2 + Ssw^2 + Sa^2)^{1/2} /1.73 = S_M =$		8.08

Projected S_m WORKSHEET

	S	S^2
Groundwater Route Score (Sgw)	15.51	240.56
Surface Water Route Score (Ssw)	7.97	63.52
Air Route Score (Sa)	0	0
$Sgw^2 + Ssw^2 + Sa^2$		304.08
$(Sgw^2 + Ssw^2 + Sa^2)^{1/2}$		17.44
$(Sgw^2 + Ssw^2 + Sa^2)^{1/2} /1.73 = S_M =$		10.08

PG 1 OF 1

NO. 8

PHOTOGRAPHER/WITNESS
Kelly Bowles / [illegible]

DATE / TIME / DIRECTION
1/5/89 11:15am East

COMMENTS
KNUZ Radio Tower

PHOTOGRAPHER/WITNESS
Kelly Bowles / [illegible]

DATE / TIME / DIRECTION
1/5/89 11:20am South

COMMENTS
KNUZ Radio Tower

NO. 9

REFERENCES

Reference Number	Description of the Reference
1	Gabrysch, R. K., et al., 1974. Ground Water Data for Harris County, Texas, Vol. 11 Records of Wells, 1892-1972. Texas Water Development Board, Report 178.
2	Uncontrolled Hazardous Waste Site Ranking System, A User's Manual. 47FR31219-31243. July 16, 1982 (Appendix A, CERCLA).
3	Jorgensen, D. G., 1975. Analog-Model Studies of Ground Water Hydrology in the Houston District, Texas. Texas Water Development. Report 190.
4	Baker, E. T., 1979. Stratigraphic and Hydrogeologic Framework of Part of the Coastal Plain of Texas. Texas Department of Water Resources. Report 236.
5	Letter. From: Robert Simonds, President, Lead Products Company, Inc. To: U.S. EPA, Region VI, Sites Notification. October 11, 1988. Re: CERCLA Section 103C - Notification of Hazardous Waste Site.
6	Sax, N. Irving, 1984. Dangerous Properties of Industrial Materials, Sixth Edition. Van Nostrand Reinhold Company, New York.
7	ROC. To: Don MacInnes, Houston Public Works/Water Production Office. From: Kelly L. Bowles, FIT Geologist, EPA Region VI. Re: Ground Water and Surface Water Use - City of Houston. January 5, 1989.
8	USGS. 7.5 Minute Topographic Map. Quadrangles: Houston Heights, Texas (1982), Settegast, Texas (1982). Bellaire, Texas (1982). Park Place, Texas (1982).
9	1980 Census of Population and Housing, Census Tracts, Houston, Texas. U.S. Department of Commerce, Bureau of the Census. July 1983.
10	ROC. To: Dr. Herbert McKee, City of Houston Health/Engineering. From: Kelly L. Bowles, FIT Geologist, EPA Region VI. Re: Buffalo Bayou/Houston Ship Channel Use.
11	ROC. To: Julie Massey, U.S. Fish and Wildlife Services. Ecological Services. From: Kelly Bowles, FIT Geologist, EPA Region VI. Re: Sensitive Environments along Buffalo Bayou. January 9, 1989.

Reference Number	Description of the Reference
12	1980 Census of Population, Number of Inhabitants, Texas. U.S. Department of Commerce, Bureau of the Census. March 1982.
13	Letter. To: Kelly Bowles, FIT Geologist, EPA Region VI. From J. C. Fisher, Supervisory Hydrologist, Water Resources Division, U.S. Geological Survey. Re: Daily Mean Discharge - Buffalo Bayou. January 12,
14	ROC. To: Henry Flemming, Technician, Army Corps of Engineers. From: Brian Boerner, FIT Chemist, EPA Region VI. Re: Flood Plains near Buffalo Bayou. January 10, 1989.
15	ROC. To: Eddie Elliot, Texas Water Commission. From: Frances Verhalen, FIT Environmental Scientist, EPA Region VI. Re: Regulatory History of Lead Products Company. January 3, 1989.

REFERENCE 1

TEXAS WATER DEVELOPMENT BOARD

REPORT 178

GROUND-WATER DATA FOR HARRIS COUNTY, TEXAS

VOLUME II

RECORDS OF WELLS, 1892-1972

By

R. K. Gabrysch, W. L. Naftel, Gene D. McAdoo, and C. W. Bonnet
United States Geological Survey

This report was prepared by the U.S. Geological Survey
under cooperative agreement with the
Texas Water Development Board
and the
City of Houston

January 1974

GROUND-WATER DATA FOR HARRIS COUNTY, TEXAS

VOLUME II

RECORDS OF WELLS, 1892-1972

By

R. K. Gabrysch, W. L. Naftel, Gene D. McAdoo, and C. W. Bonnet
United States Geological Survey

INTRODUCTION

The collection of hydrologic data in Harris County, Texas, was begun by the U.S. Geological Survey on a more or less continuing basis in 1929. The current data-collection program is in cooperation with the Texas Water Development Board and the city of Houston.

The data-collection program consists of an inventory of new large-capacity and other selected wells, the collection of water samples from wells for chemical analyses, an inventory of ground-water pumpage, water-level measurements in observation wells, pumping tests on large-capacity wells, and a compilation of information on land-surface subsidence.

This report presents records of 2,635 wells in 10 areas (Figure 1) in Harris County that have been collected as part of the inventory from 1929 to 1972. Data on geology, hydrology, pumpage, water levels, and

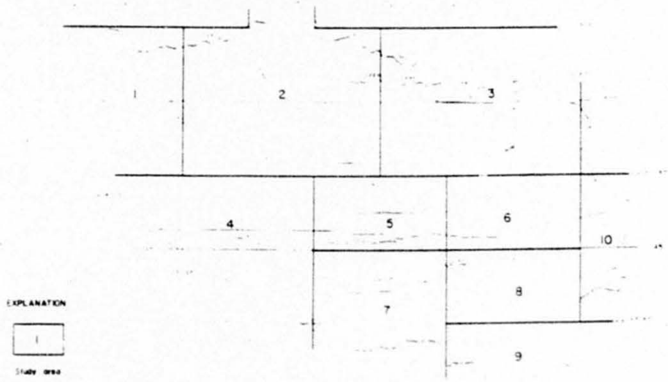

Figure 1.—Location of Areas in Harris County

chemical quality of ground water in Harris County may be obtained from previous publications, some of which are listed in the selected references in this report.

WELL-NUMBERING SYSTEM

The well-numbering system in Texas was developed by the Texas Water Development Board for use throughout the State. Under this system, each 1-degree quadrangle is given a number consisting of two digits. These are the first two digits in the well number. Each 1-degree quadrangle is divided into 7½-minute quadrangles which are given 2-digit numbers from 01 to 64. These are the third and fourth digits of the well number. Each 7½-minute quadrangle is divided into 2½-minute quadrangles which are given a single digit number from 1 to 9. This is the fifth digit of the well number. Finally, each well within a 2½-minute quadrangle is given a 2-digit number in the order in which it was inventoried, starting with 01. These are the last two digits of the well number.

Only the last three digits of the well number are shown at each location on Figures 2-11; the first four digits are shown in the northwest corner of each 7½-minute quadrangle.

In addition to the 7-digit well number, a 2-letter prefix is used to identify the county. The prefix for Harris County is LJ. The prefix is not included with the well numbers in the table because all wells are in Harris County.

Records of wells in Harris County--Continued

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water-bearing unit	Altitude of land surface (ft.)	Water level: Above (+) below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
65-13-833	J. Ray McDermott	A. Chrysty Kuhlmann	1969	633	6 4	590 633	CL	40	257	Aug. 1969	Sub,E	Irr	Screen from [illegible] to [illegible] ft. [illegible] grass. 2/
901	Liquid Carbonic Corp.	Texas Water Wells Inc.	1955	923	12 6	307 923	E	51	--	--	N	S	[illegible] ft. of screen between [illegible] and 920 ft.
902	Washington Laundry	A. Chrysty Kuhlmann	1956	487	6 4	450 487	CL	51	197	Oct. 23, 1956	--	Ind	Screen from 437 to 487 ft. 2/
* 903	City of Houston Central Well C-19	Texas Water Wells, Inc.	1948	1,980	24 13 12	627 1,000 1,980	E	52	242.6 357.5	Apr. 17, 1948 Feb. 19, 1971	T,E	P	[illegible] ft. of screen between 1,[illegible] and 1,9[illegible] ft. Reported yield 2,400 gpm with [illegible] ft. of drawdown when drilled. 1/
* 904	City of Houston Central Well C-20	do	1949	1,960	24 12	604 1,960	E	46	188.4 355.5	Mar. 22, 1949 Feb. 23, 1971	T,E	P	[illegible] ft. of screen between 1,[illegible] and 1,910 ft. Reported yield 2,435 gpm with 67 ft. drawdown when drilled. 1/
* 905	City of Houston Central Well C-21	do	1957	2,020	24 12	606 2,020	E	43	237.9 342.2	Mar. 31, 1957 Feb. 22, 1971	T,E 250	P	410 ft. of screen between 745 and 2,000 ft. Reported yield 2,919 gpm with 72 ft. drawdown when drilled. 1/
906	Harris Cream Top Dairy	Layne Texas Co.	1933	514	8	514	CL	51	49	Apr. 1933	T,E 10	Ind	Screen from 462 to 501 ft. Reported yield 120 gpm with 20 ft. drawdown when drilled. 2/
907	Samuel Bingham and Son Manufacturing Corp.	Texas Water Supply Co.	1940	450	6 4	165 450	CL	50	--	--	T,E 5	Ind	
908	Sanitary Farm Dairy	McMasters and Pomeroy	1935	590	8 6	-- 590	CL	57	--	--	T,E 20	Ind	Screen from [illegible] to 590 ft.
909	Creamix Corp.	do	1927	250	8	250	CL	62	67	Mar. 4, 1931	N	S	[illegible] ft. of screen between 173 and 2[illegible] ft. 2/
910	Fidelity Chemical Corp.	Unknown	1917	465	6	465	CL	62	66	Jan. 23, 1931	N	S	
911	Swift and Company	Layne Texas Co.	1917	670	10 8	-- 670	CL	58	45.8	Jan. 23, 1931	A	Ind	[illegible] ft. of screen between [illegible] and 620 ft.
912	Houston Cotton Oil Co.	G. C. Warnecke	1893	540	--	--	--	51	48.7	Jan. 11, 1931	N	N	
914	City of Houston	Unknown	1917	558	24	558	C	59	20	Oct. 19, 1928	N	N	Well destroyed.
915	do	Layne Bowler Co.	1918	1,465	24 10 8	-- -- 1,465	E	59	18	Nov. 1918	N	N	Well destroyed.
916	Horlock Ice Co.	J. A. Welling	1925	360	8	360	C	60	89.6 149.6	Jan. 23, 1931 June 12, 1969	N	N	Well destroyed. 1/
917	Henke and Pillot	G. C. Warnecke	Old	575	6	575	C	56	58.0 94.2	Jan. 22, 1931 Apr. 19, 1943	N	N	Well destroyed. 1/
* 918	do	McMasters and Pomeroy	1929	571	6	571	CL	55	74.7 110.3	Jan. 22, 1931 June 10, 1946	N	N	Screen from [illegible] to 5[illegible] ft. Well destroyed. 2/ 1/
919	Fidelity Products Co.	Layne Bowler Co.	1900	350	6	350	CL	57	66.4 102.3	Jan. 25, 1931 Feb. 3, 1947	N	N	Screen from 315 to 350 ft. Well destroyed. 1/
920	do	Unknown	1920	825	8	825	E	57	77.1 126.0	Jan. 23, 1931 Mar. 8, 1947	N	N	Well destroyed. 1/
* 921	Standard Rice Co.	Layne Bowler Co.	1908	853	6	853	E	50	53 85	Jan. 25, 1931 Nov. 7, 1938	N	N	Screen from [illegible] to [illegible] ft. Well destroyed. 2/

See footnotes at end of table.

Records of wells in Harris County [illegible]

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water-bearing unit	Altitude of land surface (ft.)	Water level: Below land-surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
65-11-705	Trinity Portland Cement Co.	Layne Texas Co.	1951	[illegible]	14 8	495 612	[illegible]	[illegible]	[illegible]	[illegible] 1951	[illegible]	[illegible]	[illegible]
707	City of Houston Central Well [illegible]	do.	[illegible]	[illegible]	24 12	[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible] 20, [illegible] [illegible] 22, [illegible]	[illegible]	[illegible]	[illegible]
708	Southern Pacific Railroad	Texas Water Wells, Inc.	[illegible]	[illegible]	12 6	[illegible] 1,128	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
709	Crescent Laundry	Layne Texas Co.	1936	[illegible]	6 5	160 235	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
710	Mid-Continental [illegible] Co.	do.	1939	[illegible]	8	525	[illegible]	[illegible]			[illegible] 2	[illegible]	[illegible]
711	Southern Pacific Railroad Well 3	do.	1937	[illegible]	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 18, [illegible]	[illegible]	[illegible]	[illegible]
712	Southern Pacific Railroad	do.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
713	Southland Co.	do.	1941	[illegible]	12 7	[illegible] 354	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
714	Houston Lighting and Power Co. Gable St. Well 2	do.	1939	[illegible]	18 10	633 887	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 2	[illegible]	[illegible]
715	Houston Ice and Cold Storage Co.	J. A. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
716	Sunshine Laundry	McMasters and Pomeroy	1929	[illegible]	8 6	[illegible] [illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
717	Main Building Corp.	Layne Texas Co.	1936	[illegible]	10 8	[illegible] 932	[illegible]	[illegible]	[illegible]	[illegible] 13, [illegible]	[illegible]	[illegible]	[illegible]
718	Phenix Dairy Well 1	do.	[illegible]	[illegible]	8 6	162 534	[illegible]	[illegible]	[illegible]	[illegible] 26, [illegible]	[illegible]	[illegible]	[illegible]
719	[illegible] and Gas Building	Texas Water Supply Corp.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 19, [illegible]	[illegible]	[illegible]	[illegible]
720	Rice Hotel Laundry	Layne Texas Co.	[illegible]	1,502	10 8 6	221 1,183 1,502	[illegible]	[illegible]	[illegible]	July 23, [illegible]	[illegible]	[illegible]	[illegible]
721	Commerce Building	do.	[illegible]	[illegible]	10 8	672 900	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
722	South Coast Life Building	Texas Water Supply Corp.	1936	[illegible]	10 6	[illegible] 887	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
723	Niels Esperson Building	do.	1940	[illegible]	8 6	[illegible] 906	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]

See footnotes at end of table.

Records of wells in Harris County, Texas—Continued

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water-bearing unit	Altitude of land surface (ft.)	Water level: Above (+) or below land-surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
65-14-724	Uptown Theatre	Layne Texas Co.	1935	[illegible]	16 8	269 404	[illegible]	[illegible]	[illegible]	Oct. 7, 1935	[illegible]	[illegible]	[illegible]
* 725	Model Laundry	Southern Engine and Pump Co.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
* 726	Houston Ice and Cold Storage Co.	J. A. Welling	1915	[illegible]	[illegible]	825	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
* 727	City of Houston Northeast Well 1	McMasters and Pomeroy	1931	[illegible]	24 12	[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible] Mar. 9, 1962	[illegible]	[illegible]	[illegible]
* 728	Rice Hotel Well 1	Layne Texas Co.	[illegible]	[illegible]	[illegible] 4	1,221 1,395	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
* 729	Rice Hotel Well 2	J. A. Welling	1926	[illegible]	16 12 10	-- -- [illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
* 730	Missouri Pacific Lines	Layne Texas Co.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
731	Houston Belt and Terminal Railroad	McMasters and Pomeroy	1931	[illegible]	[illegible]	[illegible] 708	[illegible]	[illegible]	[illegible]	Jan. [illegible], [illegible]	[illegible]	[illegible]	[illegible]
* 733	Missouri, Kansas and Texas Railroad	Layne Texas Co.	[illegible]	[illegible]	12 [illegible] 6	-- -- [illegible]	[illegible]	[illegible]	[illegible] [illegible]	[illegible] Oct. 24, [illegible]	[illegible]	[illegible]	[illegible]
* 736	Niels Esperson Building	do.	1925	[illegible]	[illegible] 6	825 895	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
* 737	Houston Lighting and Power Co. Gable St. Well 1	Taylor and Roberts	1922	[illegible]	[illegible] 6	[illegible] [illegible]	[illegible]	[illegible]	[illegible] 119.0	Jan. 21, [illegible] Oct. 11, 1940	[illegible]	[illegible]	[illegible]
739	Houston Electric Co.	Unknown	1910	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 94.7	Jan. [illegible], [illegible] Sept. 15, 1942	[illegible]	[illegible]	[illegible]
* 740	Southern Pacific Building	Taylor and Roberts	1923	[illegible]	[illegible] [illegible]	791 [illegible]	[illegible]	[illegible]	--	--	[illegible]	[illegible]	[illegible]
741	San Jacinto Hotel	do.	[illegible]	[illegible]	[illegible] 4	-- [illegible]	[illegible]	[illegible]	[illegible] [illegible]	[illegible] June 11, [illegible]	[illegible]	[illegible]	[illegible]
* 743	Ambassador Apartments	Layne Texas Co.	1910	[illegible]	[illegible] [illegible]	-- [illegible]	[illegible]	[illegible]	--	--	[illegible]	[illegible]	[illegible]
744	Kress Building	do.	1913	[illegible]	[illegible]	542	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
* 747	City of Houston Central Well C-16	do.	1925	[illegible]	24 10	151 1,535	[illegible]	[illegible]	[illegible] [illegible]	[illegible] [illegible], 1925 Mar. 9, 1948	[illegible]	[illegible]	[illegible]
* 748	City of Houston Central Well D-17	do.	[illegible]	[illegible]	24 10	151 [illegible]	[illegible]	[illegible]	[illegible] [illegible]	[illegible] Mar. [illegible], [illegible]	[illegible]	[illegible]	[illegible]
749	Texaco Inc. Building	J. E. Roberts	[illegible]	[illegible]	[illegible] 4	1,329 1,335	[illegible]	[illegible]	[illegible] [illegible]	Jan. [illegible], [illegible] Sept. 25, [illegible]	[illegible]	[illegible]	[illegible]

See footnotes at end of table.

Records of wells in Harris County—Continued

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water-bearing unit	Altitude of land surface (ft.)	Water level: Above (+) below land-surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*65-14-750	Burkhart Laundry	McMasters and Pomeroy	1931	1,402	8 6	1,311 1,402	E	50	--	--	T, E 20	Ind	Screen from 1,3[illegible] to 1,402 ft. Reported yield 200 gpm in 1931. [illegible]
* 751	T. J. [illegible] Building	Layne Bowler Co.	1923	[illegible]	6 4	252 303	Cl	50	[illegible]	1923	S	[illegible]	[illegible] ft. of screen between [illegible] and 303 ft. Reported yield 100 gpm in 1931.
* 753	Gould Wet Wash Laundry	Layne Texas Co.	1924	1,39[illegible]	6 4	1,3[illegible]1 1,392	E	41	--	--	S	[illegible]	Screen from [illegible] to 1,392 ft. Reported yield 150 gpm in 1930. [illegible]
754	Zero Ice Co.	Layne Bowler Co.	1923	881	6 10	145 881	Cl, E	50	[illegible]	Feb. 23, 1938	S	N	180 ft. of screen between [illegible] and 691 ft. Reported yield [illegible] gpm with 50 ft. drawdown Feb. 23, 1938. 2/
* 755	Houston Packing Co. Well 1	W. [illegible] Batschke	1907	1,618	6 5	915 1,618	E	50	72	Feb. 1938	S	N	Screen from 1,536 to 1,618 ft. Reported yield 258 gpm with [illegible] ft. drawdown Feb. 1938.
756	Houston Packing Co. Well 3	Layne Texas Co.	1930	619	12 8	152 619	Cl	40	51 102 103.[illegible]	May 1930 July 11, 1941 Jan. 30, 1953	T, E 25	Ind	161 ft. of screen between 2[illegible] and 611 ft. Reported yield 200 gpm with 22 ft. drawdown July 11, 1941. Test hole drilled to 624 ft. 2/
757	Houston Packing Co. Well 2	McMasters and Pomeroy	1918	417	8	417	Cl	50	[illegible] 76.2	Jan. 8, 1931 Sept. 29, 1941	S	[illegible]	[illegible] ft. of screen between 21[illegible] and 41[illegible] ft. Well destroyed. 2/ 3/
758	Houston Packing Co. Well 4	Layne Texas Co.	1936	424	13 8	259 424	Cl	50	71	Dec. 23, 1936	T, E 40	Ind	[illegible] ft. of screen between [illegible] and 420 ft. Reported yield [illegible] gpm with 43 ft. drawdown when drilled.
* 759	City of Houston Northeast Well 3	do.	1928	1,29[illegible]	21 12	375 1,291	E, Cl	49	[illegible] 251.1	[illegible] 1[illegible], 1928 Feb. 14, 1967	S	N	[illegible] ft. of screen between [illegible] and 1,2[illegible] ft. Reported yield 2,000 gpm in Jan. 19[illegible]. 2/
760	Coca Cola Bottling Co.	do.	1933	824	8	824	E, Cl	50	20.4	Aug. 1933	[illegible]	N	100 ft. of screen between 624 and 810 ft. Reported yield 425 gpm with 23 ft. drawdown in 1940. 2/
* 762	Lead Products Co.	H. E. Jackson Co.	1953	258	4	258	Cl	60	110	Nov. 24, 1953	S	[illegible]	Screen from 2[illegible] to 258 ft. Reported yield 100 gpm when drilled.
763	Memorial Baptist Hospital	Layne Texas Co.	1963	1,500	14 8	1,285 1,500	E	52	284	May 1963	--	P	148 ft. of screen between 1,2[illegible] and 1,490 ft. Reported yield [illegible] gpm with 39 ft. drawdown when drilled.
* 764	Willborg's Laundry	do.	1932	958	6 4	891 958	E	53	[illegible]	Apr. 26, 1932	S	S	Screen from 904 to 958 ft. Reported yield [illegible] gpm with 80 ft. drawdown when drilled. Well destroyed. 2/
* 765	Ineeda Laundry	Taylor and Roberts	1910	975	4	975	E	50	--	--	S	N	Well destroyed.
* 801	Southern Pacific Railroad Well 1	Texas Water Wells, Inc.	1954	1,206	10 6	-- 1,206	E	50	338	Oct. 8, 1970	T, E	Ind	[illegible] ft. of screen between 1,[illegible] and 1,20[illegible] ft. Supplies Englewood yard.
* 802	Southern Pacific Railroad Well 2	do.	1954	1,201	10 6	1,065 1,201	E	50	338	Oct. 8, 1970	T, E	Ind	[illegible] ft. of screen between 1,[illegible] and 1,[illegible] ft. Supplies Englewood yard.
803	The Dana Co.	McMasters and Pomeroy	1950	550	8	550	Cl	41	[illegible] 154	May 2, 1959 1960	T, E	Ind	
804	McDonough Cement Co.	Texas Water Wells, Inc.	1962	800	12 6	600 800	E	43	264	Feb. 8, 1962	T, E 60	N	[illegible] ft. of screen between [illegible] and 29[illegible] ft. Reported yield [illegible] gpm with 113 ft. drawdown when drilled.
805	Weingarten's Bakery	Layne Texas Co.	1957	905	10 6	693 905	E	42	232	Mar. 1, 1957	T, E	Ind	80 ft. of screen between 825 and 905 ft.

See footnotes at end of table.

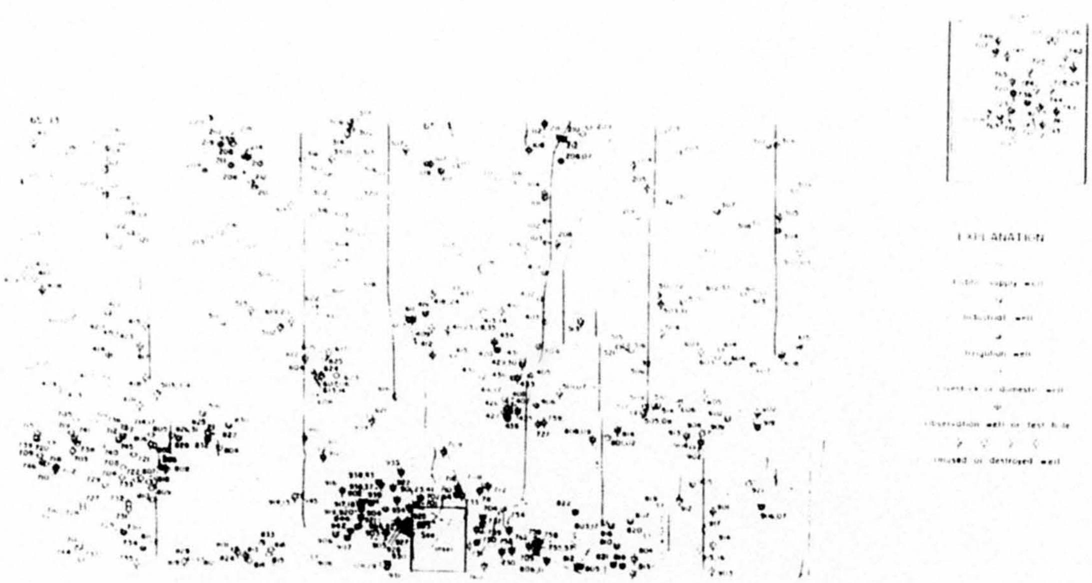

Figure 6
Locations of Wells in Area 5

Records of wells in Harris County--Continued

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water bearing unit	Altitude of land surface (ft.)	Water Level: Above (+) below land surface datum (ft.)	Water Level: Date of Measurement	Method of lift	Use of water	Remarks
65-21-218	City of Southside Place Well 2	McMasters and Pomeroy	1935	998	8 6	830 998	E	56	50 108	Sept 1935 Jan. 16, 1948	--	N	64 ft. of screen between 911 and 998 ft. Reported yield 450 gpm with 42 ft. drawdown when drilled. Well destroyed. 2/ 3/
219	City of Southside Place Well 3	do	1941	894	13 8	279 884	CL, E	56	64.0 100.3	Mar. 6, 1941 Feb. 28, 1967	N	N	120 ft. of screen between 481 and 869 ft. Reported yield 400 gpm with 33 ft. drawdown when drilled. Well destroyed. 3/
220	City of West University Place	J. A. Welling	1925	650	6	650	C	57	42.4 61.7	Nov. 3, 1931 Aug. 5, 1940	N	N	Well destroyed. 3/
221	do	Unknown	1931	900	8	900	E	60	46.3 53.2	Dec. 21, 1938 Feb. 19, 1941	N	N	Well destroyed. 3/
222	City of West University Place Well 5	Layne Texas Co.	1941	1,673	20 12	-- 1,673	E	55	103	June 14, 1961	T, E 150	P	198 ft. of screen between 1,205 and 1,612 ft. Reported yield 2,000 gpm with 67 ft. drawdown when drilled.
223	City of West University Place Well 3	do	1938	768	13 6	-- 768	E, CL	55	51	Mar. 11, 1938	T, E 30	P	89 ft. of screen between 632 and 758 ft. Reported yield 530 gpm with 73 ft. drawdown when drilled. 2/
224	City of West University Place Well 4	do	1939	1,282	16 8	799 1,282	E	55	74	Nov. 28, 1939	T, E 125	P	151 ft. of screen between 911 and 1,159 ft. Reported yield 1,510 gpm when drilled. 2/
225	City of Southside Place	Texas Water Wells, Inc.	1969	998	12 8	600 998	E	56	262	Aug. 18, 1969	Sub, E 100	P	164 ft. of screen between 611 and 988 ft. Reported yield 417 gpm with 25 ft. drawdown when drilled. Test hole drilled to 1,000 ft. 2/
301	City of Houston South End Well 7	Layne Texas Co.	1966	1,750	24 12	630 1,750	E	49	143 321.7	Aug. 16, 1966 Feb. 18, 1970	N	N	234 ft. of screen between 1,362 and 1,735 ft. Reported yield 2,253 gpm with 110 ft. drawdown when drilled. Test hole drilled to 2,508 ft. Plugged back to 1,750 ft. 1/ 2/
302	City of Houston South End Well 8	Texas Water Wells, Inc.	1953	1,670	24 12	589 1,670	E	46	209.2 319.6	Sept 18, 1953 Feb. 10, 1971	T, E 250	P	335 ft. of screen between 710 and 1,650 ft. Measured yield 1,805 gpm with 32 ft. drawdown Sept. 12, 1968. 1/
303	City of Houston South End Well 9	El Paso Drilling Co.	1954	1,822	24 12	610 1,822	E	44	243.7 318.1	Oct. 8, 1954 Feb. 10, 1971	T, E 250	P	325 ft. of screen between 680 and 1,890 ft. Measured yield 1,257 gpm with 31 ft. drawdown Sept. 12, 1968. 1/
304	City of Houston South End Well 10	Texas Water Wells, Inc.	1958	2,190	24 12	595 2,180	E	50	232.6 328.8	Mar. 4, 1958 Feb. 9, 1971	T, E 250	P	400 ft. of screen between 795 and 2,170 ft. Measured yield 1,804 gpm with 29 ft. drawdown Sept. 12, 1968. 1/
305	Dr. Allely	H. L. Jackson Co.	1951	279	3	279	CL	51	105	Aug. 6, 1951	J, E	D	Reported 20 ft. of screen.
306	City of Houston South End Well 11	Texas Water Wells, Inc.	1962	2,215	24 12	590 2,215	E	49	256.2 318.4	May 6, 1962 Feb. 9, 1971	Sub, E	P	440 ft. of screen between 700 and 2,195 ft. Measured yield 1,464 gpm with 19 ft. drawdown Sept. 13, 1968. Test hole drilled to 2,510 ft. 1/ 2/
307	Hermann Hospital	Layne Texas Co.	1937	417	10 5	292 417	CL	45	127.2 207.1	Feb. 19, 1953 Feb. 27, 1970	T, E 25	P	Screen from 300 to 415 ft. Reported yield 260 gpm with 30 ft. drawdown when drilled. 1/ 2/
308	Parklane Apartments	Texas Water Supply Corp.	1939	490	8 6	-- 490	CL	46	--	--	N	N	Screen from [illegible] to [illegible] ft. Reported yield 125 gpm when drilled.

See footnotes at end of table.

Records of wells in Harris County—Continued

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water bearing unit	Altitude of land surface (ft.)	Water level: Above (+) below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*65-21-916	Gulf Oil Co.	L. Patterson	1935	376	7	376	CL	60	--	--	N	N	[illegible] ft of screen between [illegible] and [illegible] ft. Well destroyed.
* 917	Coastal States Gas Producing Co. Well 1	Layne Texas Co.	1968	[illegible]	11 8	350 470	CL	61	234	July 9, 1968	T, E 60	Ind	[illegible] ft of screen between [illegible] and [illegible] ft. Reported yield [illegible] gpm with [illegible] ft drawdown when drilled.
* 918	Coastal States Gas Producing Co. Well 2	do.	1968	360	14 8	200 360	C	61	167	Aug. 7, 1968	T, E 60	Ind	94 ft of screen between 207 and [illegible] ft. Reported yield [illegible] gpm with 37 ft drawdown when drilled. Test hole drilled to 453 ft. 2
* 919	Texas Brine Corp. Well 2	do.	--	450	--	--	C	61	--	--	N	N	Well destroyed.
* 923	Texas Brine Corp. Well 7	Leonard Nickelson	1969	463	13 12	[illegible] 463	CL	61	140	Mar. 20, 1969	T, E 60	Ind	Casing slotted from [illegible] to [illegible] ft. 2
924	Vanda Petroleum Co.	Katy Drilling Co.	1969	810	14	810	CL, E	60	258	May 28, 1969	T, E	Ind	Casing slotted from [illegible] to 810 ft. 2
925	Beaumont Well Works Co.	A. Christy Kuhlmann	1970	606	8 6	528 606	CL	51	210	Sept. 21, 1970	Sub, E	Ind	Screen from [illegible] to 606 ft. 2
926	Bryan Jackson Co.	Lowry Water Wells	1969	239	4 2½	211 239	CL	50	132	Dec. 16, 1969	Sub, E 2	Ind	Screen from [illegible] to [illegible] ft. 2
* 927	C. W. Mowery	C. L. Mowery	1922	260	4	260	CL	55	--	--	N	N	Well destroyed.
22-101	Parco Rubber Co.	Lowry Water Wells	1953	434	6 4	240 434	CL	48	--	--	--	Ind	62 ft of screen between [illegible] and [illegible] ft.
* 102	University of Houston Test Well 1	--	1957	2,436	--	--	E	42	--	--	--	--	Test well. [illegible] test data in files of U.S.G.S.
* 103	City of Houston Scott Street Well 4	Layne Texas Co.	1963	2,157	24 12	571 2,157	E	45	252.8 328.2	Mar. 22, 1963 Feb. 16, 1971	Sub, E 300	P	[illegible] ft of screen between [illegible] and 2,110 ft. Measured yield [illegible] gpm with [illegible] ft drawdown when drilled. 1
104	Seven-Up Bottling Co.	do.	1937	388	7 5	298 388	CL	47	66	Mar. 7, 1937	N	N	Screen from 310 to 388 ft. Reported yield 85 gpm with 26 ft drawdown when drilled. 2
105	Nehi Bottling Co.	Failing Drilling Co.	1934	565	6	565	CL	43	--	--	N	N	Screen from [illegible] to [illegible] ft. Reported yield [illegible] gpm in [illegible].
* 106	City of Houston Scott Street Well 3	Layne Texas Co.	1938	957	21 12	473 957	E, CL	44	97.4 223.0	Nov. 15, 1938 Mar. 14, 1963	T, E 150	N	[illegible] ft of screen between [illegible] and 945 ft. Reported yield 1,000 gpm with 83 ft drawdown when drilled. Test hole drilled to 1,001 ft. 2 1
107	Ben Coyle	Texas Water Supply Corp.	1939	500	6	500	CL	44	--	--	T, E 7½	D	Screen from 460 to 500 ft.
108	Henard Jakowitz	do.	1940	285	6	285	CL	44	--	--	T, E 7½	D	Screen from [illegible] to 285 ft.
109	C. W. Edwards	McMasters and Pomeroy	1938	555	6	555	CL	40	--	--	T, E 2½	D	[illegible] ft of screen between [illegible] and [illegible] ft. Reported yield 165 gpm when drilled.
110	Ben Taub	Texas Water Supply Corp.	1940	295	8 6	265 295	CL	40	--	--	T, E 7½	D	Screen from [illegible] to 295 ft. Reported yield 100 gpm when drilled.
111	Albert Plummer	do.	1936	745	8 7	685 745	E	43	--	--	N	N	Screen from 685 to 745 ft. Well destroyed.
112	Houston Belt and Terminal Railroad Well 1	McMasters and Pomeroy	1924	832	8	832	E	44	--	--	N	N	Well destroyed.

Records of wells in Harris County--Continued

No.	Owner	Driller	Date completed	Depth of well (ft.)	Casing: Diameter (in.)	Casing: Depth (ft.)	Water-bearing unit	Altitude of land surface (ft.)	Water level: Above (+) below land-surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
-65-32-130	City of Houston Scott Street Well 7	Texas Water Wells, Inc.	1963	1,725	24 12	600 1,725	C	45	275.7 343.0	Feb. 6, 1964 Mar. 8, 1971	T, E 300	P	391 ft. of screen between 705 and 1,715 ft. Measured yield 2,919 gpm with 43 ft. drawdown when drilled. [illegible]
131	Dixon Packing Co.	Pomeroy Drilling Co.	--	900	6	900	E	41	247	Oct. 1963	T, E 10	Ind	
132	Blue Ribbon Packing Co.	do	1966	785	8 6	551 785	E, CL	42	216	May 22, 1966	Sub, E 30	Ind	[illegible] ft. of screen between [illegible] and 782 ft.
133	Port City Stock Yards	W. J. [illegible] Co.	1968	622	7 4	568 622	CL	35	268	July 17, 1968	Sub, E 20	S	Screen from 569 to 619 ft. Reported yield 190 gpm with 32 ft. drawdown when drilled. 2/
201	Christensen Courts	H. L. Jackson Co.	1948	235	6	235	CL	34	--	--	T, E 10	P	Reported 40 ft. of screen. Reported yield 85 gpm when drilled.
202	Hamma Brewing Co.	Layne Texas Co.	1947	1,133	16 10	831 1,133	E	37	194	Sept. 6, 1947	N	N	180 ft. of screen between [illegible] and 1,099 ft. Reported yield 933 gpm with 47 ft. drawdown when drilled.
203	Hughes Tool Co. Well 3	do	1948	1,120	22 16 10	522 843 1,120	E	38	194	Sept. 28, 1948	T, E	Ind	155 ft. of screen between 867 and 1,106 ft. Reported yield 900 gpm with 62 ft. drawdown when drilled.
204	Able Supply Co.	Briggs Pump Service	1953	282	4	282	CL	39	114	Sept. 1953	Sub, E 2	Ind	Screen from 272 to 282 ft.
205	Reed Roller Bit Co. Well 3	Layne Texas Co.	1941	1,115	13 7	746 1,115	E	40	120	Nov. 24, 1941	T, E 60	Ind	112 ft. of screen between [illegible] and 1,066 ft. Reported yield 330 gpm with 51 ft. drawdown when drilled.
206	Houston Golf Club	do	1939	1,131	13 7	-- 1,131	E	33	87	June 8, 1939	N	N	Screen from 1,030 to 1,131 ft. Well destroyed.
207	Houston Golf Club Well 2	do	1934	899	10 6	334 899	E, CL	36	45	Mar. 1934	N	N	75 ft. of screen between [illegible] and 897 ft. Well destroyed. 2/
208	J. B. Baler	do	1934	309	6 4	288 309	CL	40	62	Oct. 1934	N	N	Screen from 289 to 293 ft. Well destroyed.
209	Mrs. E. F. Sims	McMasters and Pomeroy	1940	590	5 4	196 590	CL	25	87	May 20, 1940	A	D	30 ft. of screen between [illegible] and 581 ft. Reported yield 140 gpm when drilled.
210	Hughes Tool Co.	Layne Texas Co.	1934	1,123	24 10	205 1,123	E	37	--	--	N	N	127 ft. of screen between [illegible] and 1,1[illegible] ft. Formerly supplied Gulf Brewing Co. Well destroyed. 2/
211	Hughes Tool Co. Well 2	do	1926	1,096	24 16 10	162 -- 1,096	E	40	31.0 225.4	May 3, 1926 June 1, 1956	N	N	159 ft. of screen between [illegible] and 1,096 ft. Well destroyed. 2/ 3/
212	Hughes Tool Co. Well 1	do	1923	694	16 10	85 694	CL, E	40	49.2 78.5	Jan. 8, 1931 Mar. 18, 1945	N	N	101 ft. of screen between [illegible] and 694 ft. Test hole drilled to 697 ft. Well destroyed. 2/ 3/
213	Gulf Concrete Pipe Co.	L. H. Bowery	1941	276	4 2½	256 276	CL	42	--	--	J, E	Ind	Screen from 256 to 276 ft.
214	Houston Golf Club	Layne Bowler Co.	--	697	24	697	E	33	51.2 237.5	Jan. 16, 1931 Feb. 6, 1964	N	N	Well destroyed. [illegible]
215	Marshall Ice Co.	McMasters and Pomeroy	1928	508	10	508	CL	42	82	June 1941	N	N	87 ft. of screen between [illegible] and 486 ft. Reported yield 125 gpm with 66 ft. drawdown June 1941. Well destroyed.

See footnotes at end of table.

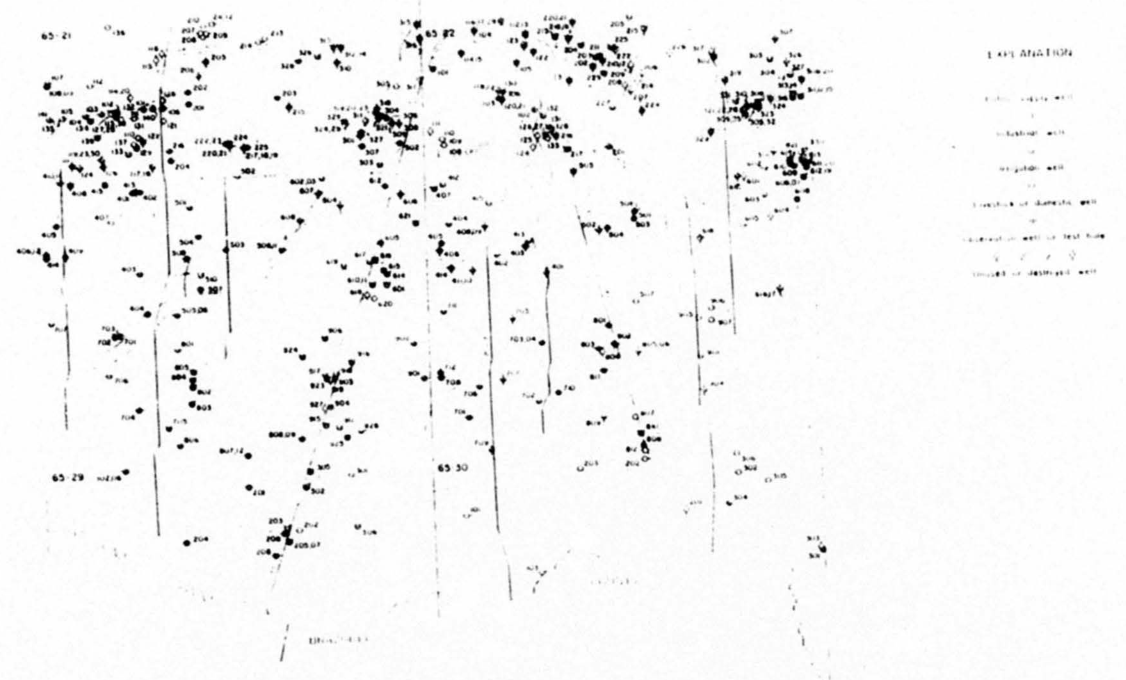

Figure 8
Locations of Wells in Area 7

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

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United States
Environmental Protection
Agency

1984

REFERENCE 3

TEXAS WATER DEVELOPMENT BOARD

REPORT 190

ANALOG-MODEL STUDIES OF GROUND-WATER HYDROLOGY IN THE HOUSTON DISTRICT, TEXAS

By

Donald G. Jorgensen
U.S. Geological Survey

This report was prepared by the U.S. Geological Survey
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and the City of Houston

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ANALOG-MODEL STUDIES OF GROUND-WATER HYDROLOGY IN THE HOUSTON DISTRICT, TEXAS

INTRODUCTION

Purpose and Scope of the Project

Continual declines of water levels in wells, land-surface subsidence, and salt-water encroachment are problems related to ground-water pumping in the Houston district that necessitate additional studies of the hydrologic system.

This study was begun in 1970 by the U.S. Geological Survey in cooperation with the city of Houston and the Texas Water Development Board. The principal purpose was to develop a means for forecasting declines in the altitudes of the potentiometric surfaces (levels to which water will rise in tightly cased wells) under various conditions of pumping. Because of the complexity of the hydrologic system, an electric analog model was chosen as the most suitable device for analyzing the system and simulating future responses.

This report presents the results of the geologic and hydrologic studies, discusses the theory and construction of the analog model, and presents the simulation of the declines in the altitudes of the potentiometric surfaces as determined by using the model.

Most of the data upon which this report is based are available in reports by the U.S. Geological Survey and the Texas Water Development Board (see references) or in the files of the U.S. Geological Survey in Houston. Data are obtained through a continuing cooperative program of the U.S. Geological Survey, the Texas Water Development Board, the city of Houston, and the city of Galveston.

For those readers interested in using the metric system, metric equivalents of English units of measurements are given in parentheses. The English units used in this report may be converted to metric units by the following conversion factors:

From		Mutiply by	To obtain	
Unit	Abbreviation		Unit	Abbreviation
cubic foot	ft^3	0.028317	cubic meter	m^3
foot	ft	0.3048	meter	m
foot per day	ft/day	0.3048	meter per day	m/day
foot squared per day	ft^2/day	0.0929	meter squared per day	m^2/day
inch	in	2.540	centimeter	cm
million gallons	10^6 gal	3.785	cubic meters	m^3
square mile	mi^2	2.590	square kilometer	km^2

Description of the Area

The Houston district, as used in this report, consists of all of Harris, Waller, and Fort Bend Counties and parts of Galveston, Montgomery, Brazoria, Chambers, and Liberty Counties (Figure 1). The area of the district is approximately 6,600 square miles (17,100 square kilometers).

Figure 1.—Location and Extent of the Houston District

Except for a small area in Montgomery and Waller Counties, the land surface is nearly flat and featureless;

the only significant relief is in the valleys of the streams. The land is generally treeless in the rural areas from Houston southeast to Galveston.

The climate of the Houston district is characterized by mild winters and hot summers. The lowest temperature recorded at Houston was 15°F (-9.5°C) and the maximum temperature was 108°F (42°C). The mean annual temperature is 69.2°F (20.6°C). The 30-year average (1931-60) rainfall at Houston was 45.95 inches (116.7 centimeters); monthly rainfall is distributed uniformly throughout the year.

The Houston district has a large and diversified industrial economy, but also has extensive agricultural developments. Large amounts of water are used by industry for processing and cooling purposes and by rice and cotton growers for irrigation. The rapid growth and development of the district are due in part to the availability of large amounts of inexpensive ground-water supplies. The locations of the major pumping areas are shown on Figure 2.

Previous Studies

Among the more comprehensive earlier reports describing the geology and hydrology of the Houston district is the report by Lang and others (1950). Pettit and Winslow (1957) summarized the geology and ground-water resources of Galveston County. The relation of salt water to fresh ground water in Harris County was discussed by Winslow and others (1957). Land-surface subsidence and its relation to the withdrawal of ground water in the Houston-Galveston area was first reported by Winslow and Doyel (1954) and later by Gabrysch (1969).

Previous ground-water investigations were made in Waller County (Wilson, 1967); Liberty County (Anders and others, 1968); Montgomery County (Popkin, 1971); Fort Bend County (Wesselman, 1972); Brazoria County (Sandeen and Wesselman, 1973); and Chambers County (Wesselman, 1971). These studies provided relatively recent data on the ground-water resources and ground-water development in most of the Houston district exclusive of Harris and Galveston Counties.

A report containing data on ground-water withdrawals and water-level declines in Galveston and Harris Counties was prepared by Gabrysch (1972), and the role of groundwater in the development of the water system for the city of Houston was described in reports by Turner, Collie and Braden, Inc. (1966, 1972).

A report by Wood and Gabrysch (1965) describes the results of the first analog-model study of ground-water hydrology in the Houston district. The usefulness of the first analog model was limited because the simulations required that the aquifers be operated independently of each other and because the results of pumping in the western part of the area could not be simulated. Evaluation of the performance of the first model indicated that improvement in aquifer designation was needed and that the transmissivity of the aquifers and vertical leakage between the aquifers were not adequately modeled.

Acknowledgments

The author expresses his appreciation to Mr. D. E. VanBuskirk of the city of Houston Water Department and to the well owners and drillers who supplied pertinent information for this study. The aquifers in the district were mapped by John Wesselman, U.S. Geological Survey, and the model was designed and constructed by William Bruns, U.S. Geological Survey.

GEOHYDROLOGY

The geologic formations from which most of the ground water is pumped in the Houston district are composed of sedimentary deposits of gravel, sand, silt, and clay. The formations, from oldest to youngest, that form important hydrologic units are: The Catahoula Sandstone and Fleming Formation of Miocene age; the Goliad Sand of Pliocene age; the Willis Sand, Bentley and Montgomery Formations, and Beaumont Clay of Pleistocene age; and alluvium of Quaternary age (Table 1). Correlation of the hydrologic units from northern Montgomery County to the Gulf of Mexico is shown by the chart on Figure 3.

With exception of the alluvium and the Goliad Sand, the formations crop out in belts that are nearly parallel to the shoreline of the Gulf of Mexico. The younger formations crop out nearer the Gulf and the older ones farther inland. All the formations thicken downdip so that the older formations dip more steeply than the younger ones. Locally, however, the occurence of salt domes and faults may cause reversals of the regional dip and thickening or thinning of individual beds.

Salt domes are cylindrical structures resulting from the upward movement of salt masses that are probably of Mesozoic age. In some areas, the salt domes penetrate the uppermost aquifer and nearly reach the surface. In

Table 1.—Geologic and Hydrologic Units Used in This Report and in Recent Reports on Nearby Areas

This report: System	This report: Series	This report: Stratigraphic unit	This report: Aquifer	Wood and Gabrysch (1965): Houston district	Sandeen and Wesselman (1969): Brazoria County	Wilson (1967): Austin and Waller Counties	Popkin (1971): Montgomery County	Lang, Winslow, and White (1950): Houston district	Pettit and Winslow (1957): Galveston County	[illegible]	[illegible]	[illegible]
Quaternary	Holocene	Quaternary alluvium	Chicot aquifer: Upper unit	Confining layer and Alta Loma Sand of Rose (1943)	Chicot aquifer: Upper unit	Alluvium of the Brazos River	Chicot aquifer	Alluvial deposits	Beach and dune sand	Chicot aquifer: Upper unit	Chicot aquifer	Chicot aquifer: Upper unit
	Pleistocene	Beaumont Clay				Evangeline aquifer (May contain unidentifiable parts of basal Chicot aquifer along the edges of Brazos River flood plain or along southern part of both counties)		Beaumont clay	Beaumont clay			
		Montgomery Formation						"Alta Loma Sand"	"Alta Loma Sand"			
		Bentley Formation	Chicot aquifer: Lower unit		Chicot aquifer: Lower unit					Lower unit		Lower unit
		Willis Sand						Zone 7 Zone 6	Lissie Formation			
Tertiary	Pliocene	Goliad Sand	Evangeline aquifer	Heavily pumped layer	Evangeline aquifer		Evangeline aquifer	Zone 5		Evangeline aquifer	Evangeline aquifer	Evangeline aquifer
	Miocene	Fleming Formation	Burkeville confining layer	Zone 2		Burkeville aquiclude	Burkeville aquiclude			Burkeville aquiclude	Burkeville aquiclude	Burkeville aquiclude
			Jasper aquifer: Upper unit			Jasper aquifer	Jasper aquifer: Upper part of Jasper	Zone 4 Zone 3		Jasper aquifer	Jasper aquifer	Jasper aquifer
			Jasper aquifer: Lower unit				Jasper aquifer: Lower part of Jasper	Zone 2 Zone 1				

most instances, however, the domes pierce only the lower aquifers. Ground-water circulation within the vicinity of the domes may result in salt water contamination.

Faults in the area may have several hundred feet of displacement in the older Tertiary formations, but displacement tends to decrease upward so that the faulting may not be apparent at the surface; generally, the geologic units containing fresh water are not displaced enough to disrupt hydraulic continuity.

Description of the Water-Bearing Units

Chicot Aquifer

The Chicot aquifer is composed of the Willis Sand, Bentley Formation, Montgomery Formation, Beaumont Clay, and Quaternary alluvium (Table 1). The Chicot includes all deposits from the land surface to the top of the Evangeline aquifer (Figure 4).

The basis for separating the Chicot aquifer from the underlying Evangeline aquifer is primarily a difference in hydraulic conductivity, which in part causes the difference in the altitudes of the potentiometric surfaces in the two aquifers.

In most of the Houston district, the Chicot aquifer consists of discontinuous layers of sand and clay of about equal total thickness, and in some parts of the district, the aquifer can be separated into an upper and lower unit. Throughout most of Galveston County and southeast Harris County, the basal part of the lower Chicot aquifer is formed by a massive sand section with high hydraulic conductivity. (See Figure 4.) This sand unit, which is heavily pumped, is known locally as the Alta Loma Sand. In many previous reports, the unit is identified as the Alta Loma Sand of Rose (1943). The term Alta Loma Sand is not often used in this report because the stratigraphic relationships are not clear.

If the upper unit of the Chicot aquifer cannot be defined in a particular area, the aquifer is said to be undifferentiated. The areal extent of the upper unit roughly corresponds to the areal extent of the Beaumont Clay. The areas in which the aquifer cannot be differentiated into units are mostly in the northern part of the district (Figure 5).

Wells that are completed in the uppermost sand layers of the Chicot aquifer and that have water levels that are distinctly higher than water levels in wells completed in the underlying sand layers are considered to produce water from the upper unit.

The transmissivity of the Chicot aquifer ranges from zero to about 20,000 ft^2/day (feet squared per day) or 1,858 m^2/day (meters squared per day). The storage coefficient ranges from 0.0004 to 0.20 (Figure 6). The larger values of the storage coefficient occurs in the northern part of the district where the aquifer is partly or totally under water-table conditions.

Evangeline Aquifer

The Evangeline aquifer, which is the most important source of fresh ground water in the Houston metropolitan area, consists of layers of sand and clay that are present throughout the district except where the unit is pierced by salt domes (Figure 7). The aquifer is underlain by the Burkeville confining layer.

The transmissivity of the Evangeline aquifer ranges from less than 5,000 ft^2/day (460 m^2/day) to about 15,000 ft^2/day (1,400 m^2/day). (See Figure 8.) In general, the horizontal hydraulic conductivity of the Evangeline aquifer is less than the horizontal hydraulic conductivity of the Chicot aquifer, but because the Evangeline is generally thicker than the Chicot, it is generally more transmissive.

The storage coefficient of the Evangeline ranges from about 0.0005 to 0.0002 where it occurs under artesian conditions; in the outcrop area, where the aquifer is under water-table conditions, the storage coefficient ranges from greater than 0.002 to 0.20.

Burkeville Confining Layer

The Burkeville confining layer, which in the outcrop area is in the upper part of the Fleming Formation of Tertiary age, is composed mostly of clay but contains some layers of sand. The Burkeville restricts the flow of water except where it is pierced by salt domes and in the northeastern part of the district where it contains many water-yielding sand layers. The Burkeville is underlain by the Jasper aquifer.

Declines in the Altitudes of the Potentiometric Surfaces

Records of ground-water withdrawals in the Houston district date back to 1887, and records exist for probably 90 percent of the total withdrawals.

Use of ground water increased slowly until about [illegible]37, when rapid industrialization increased the rate of [illegible]. In 1955, surface water from the San Jacinto River (Lake Houston) became available, and the use of ground water remained relatively constant until 1962. From 1962 to 1970, the use of ground water increased to about 575 mgd (million gallons per day) or 2.2 million m^3/day (cubic meters per day). The historic withdrawals of ground water for 1890-1970 and the predicted withdrawals for 1971-80 are shown on Figure 9.

The pumping of large quantities of ground water has caused large declines in the altitudes of the potentiometric surfaces in the aquifers, except in the upper unit of the Chicot. The declines from 1890 to 1953, from 1890 to 1960, and from 1890 to 1970 in the lower unit of the Chicot aquifer and in the Chicot aquifer undifferentiated are shown on Figures 10, 11, and 12. Figures 13, 14, and 15 show the decline of the altitude of the potentiometric surface in the Evangeline aquifer for the same periods.

By 1970, the altitude of the potentiometric surface had declined a maximum of about 330 feet (100 meters) in the lower unit of the Chicot aquifer and Chicot aquifer undifferentiated and about 430 feet (130 meters) in the Evangeline aquifer.

Not enough data are available to map the decline of the altitude of the potentiometric surface in the upper unit of the Chicot aquifer.

Houston Area

Nearly all the ground water pumped in the Houston area (Figure 2) is from wells screened in the Evangeline or Chicot aquifers, and many of the wells are screened in both aquifers. (The reader should note that the Houston area is only a part of the Houston district.) The declines of water levels in wells screened in each of the aquifers are shown on Figure 16. Locations of the wells are shown on Figure 2.

Declines in the Evangeline aquifer and the lower unit of the Chicot aquifer have been the greatest. The upper unit of the Chicot is relatively undeveloped; therefore, the decline of water levels shown on Figure 16 for the upper unit of the Chicot is due in part to the discharge of water to the lower unit.

Pasadena Area

The Pasadena area is an industrialized area east of the Houston area and mostly west of the San Jacinto River (Figure 2). Most of the ground water pumped in this area is from the Evangeline aquifer, but a considerable amount is withdrawn from the lower unit of the Chicot in the southeastern part of the area. A small and mostly unrecorded amount is pumped from the upper unit of the Chicot.

Figure 17 shows the decline of water levels in three wells, each of which is screened in a different water-bearing unit. The decline of the altitude of the potentiometric surface in the upper unit of the Chicot is not as great as the decline in either the Evangeline or the lower unit of the Chicot. The decline in the upper unit of the Chicot is attributed to discharge to the lower unit and to a small amount of pumping.

Katy Area

The Katy area is an agricultural area west of the Houston area and includes the northern and western parts of Harris County, about half of Waller County, and northern Fort Bend County (Figure 2).

Ground water is used exclusively in the Katy area and most of it is used for rice irrigation. Most of the water pumped is from the lower unit of the Chicot aquifer, the Chicot aquifer undifferentiated, and the Evangeline aquifer. In the northern part of Fort Bend County, along the Brazos River, some water is pumped from the alluvium, which is a part of the upper unit of the Chicot aquifer.

Figure 18 shows the water-level declines in well LJ-65-04-507, completed in the Chicot aquifer undifferentiated and well LJ-65-04-607, completed in the Evangeline aquifer. Declines are greater in wells screened in the Evangeline aquifer than in wells screened in the Chicot aquifer undifferentiated.

Baytown-LaPorte Area

The Baytown-LaPorte area extends eastward from the Pasadena area to the Chambers County line (Figure 2). It is primarily an industrial area, in which most of the ground water used is pumped from the lower unit of the Chicot aquifer.

Figure 19 shows the water-level declines in well LJ-65-24-606, screened in the Evangeline aquifer and in well LJ-65-24-501, screened in the lower unit of the Chicot aquifer. Although most withdrawals in the area are from the lower unit of the Chicot, the rate of decline in the Evangeline is nearly as large as the decline in the lower unit of the Chicot.

a result of pumping. The northern part of the district also has the highest vertical leakage, which allows water to move easily from the surface to the Chicot aquifer.

Limitations on Use of the Analog Model

The values of the parameters modeled are rational values for the hydrologic system. Further investigation and new data will allow refinements to be made and will allow more accurate determination of the values for the parameters modeled.

The model was not designed to simulate the effects of one well over a short period of time. The model was designed to simulate the effects of withdrawal of water from a well field for periods of a year or longer.

The model was not designed to predict subsidence accurately; although, the simulation of clay compaction was included. Declines in the altitudes of the potentiometric surfaces are simulated, and these values can be used in calculations to predict subsidence.

Caution should be used in applying the modeled values in equations to predict short-term specific capacity of an individual well. The model simulates leaky-aquifer conditions with clay storage for time intervals greater than 1 year.

Data Required for Improvement of the Model

Observation wells that are screened in only one water-bearing unit are needed for better calibration of the model. The areas where measurements from such observation wells are needed are determined easily by noting the areas in which no potentiometric measurements are shown on Figures 12 and 15.

The accuracy of the model could be improved by better delineation of the water-bearing sands above the basal sand (Alta Loma Sand of Rose, 1943) of the lower unit of the Chicot in the Texas City area. To improve the correlation of observed and measured declines in the altitude of the potentiometric surface in the Texas City area, it was necessary to program extra pumpage.

More data are needed on the quantity of ground water pumped for irrigation in the vicinity of Dayton and Liberty and on the quantity of water discharged from flowing and pumped wells prior to 1930 in Galveston County.

The model could be modified to simulate clay compaction more accurately if the storage coefficient for clay compaction is determined accurately for each aquifer. In the present model, the storage coefficient for clay compaction is modeled as existing entirely between the land surface and the centerline of the lower unit of the Chicot aquifer and the Chicot aquifer undifferentiated. To distribute the storage coefficient accurately, more data concerning the characteristics of these clay layers are needed. These data can be obtained from consolidation tests on core samples, records of clay compaction from compaction recorders, and possibly from studies of various types of geophysical logs.

The present model could be modified to be one of the elements of a hybrid analog-digital model that could be used for detailed studies of such problems as salt-water encroachment and land-surface subsidence.

SUMMARY

The Houston district has two major aquifers above the Burkeville confining layer. The uppermost aquifer is the Chicot aquifer, which consists of sand and clay layers that dip gently toward the Gulf of Mexico. In places in the Houston district, the Chicot aquifer can be separated into an upper and a lower unit.

The upper unit, which is not an important source of water for most of the district, can be defined where the altitude of the potentiometric surface differs from the altitude of the potentiometric surface in the lower unit. Where the upper unit cannot be defined, the aquifer is said to be undifferentiated.

The Evangeline aquifer, which is the major aquifer in the district, underlies the Chicot aquifer and consists of sand and clay layers that dip toward the Gulf of Mexico.

The Burkeville confining layer consists mostly of clay layers that form an effective barrier to ground-water flow at nearly all locations except at and near the outcrop of the Evangeline aquifer in Montgomery County.

The large cones of depression in the potentiometric surfaces in the lower unit of the Chicot aquifer, the Chicot aquifer undifferentiated, and the Evangeline aquifer are caused by large withdrawals of water. Water now flows toward the center of these cones, creating a reversal of the original hydraulic gradient in most areas south of Houston. This reversal of the hydraulic gradient has resulted in salt-water encroachment toward the centers of the cones, but

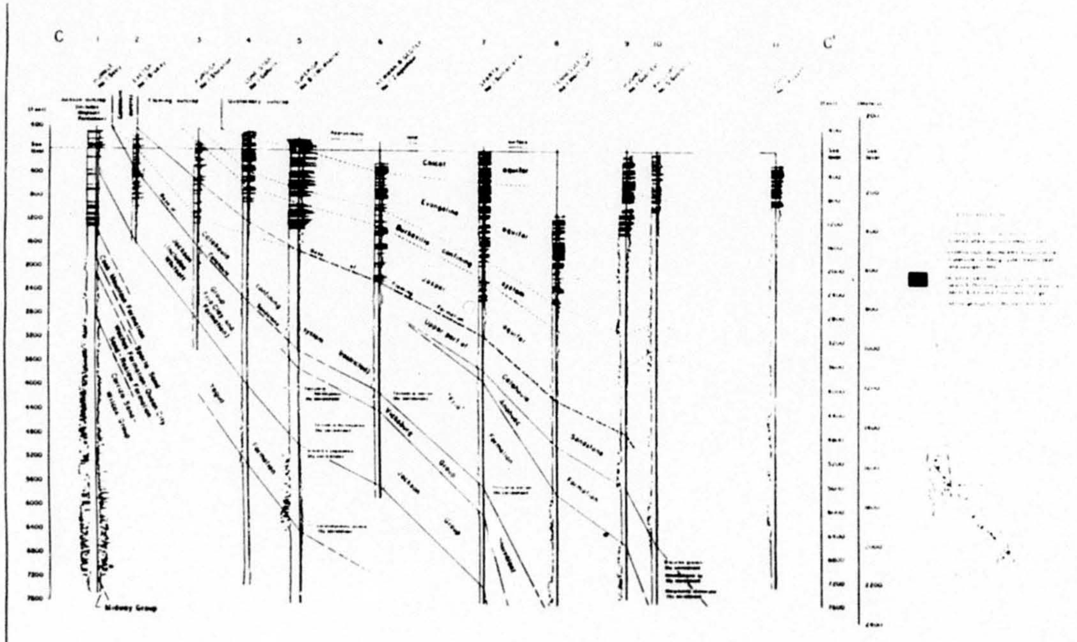

Figure 4
Stratigraphic and Hydrogeologic Section C C'

REFERENCE 4

TEXAS DEPARTMENT OF WATER RESOURCES

REPORT 236

STRATIGRAPHIC AND HYDROGEOLOGIC FRAMEWORK OF PART OF THE COASTAL PLAIN OF TEXAS

By

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United States Geological Survey

This report was prepared by the U.S. Geological Survey under cooperative agreement with the Texas Department of Water Resources.

July 1979

STRATIGRAPHIC AND HYDROGEOLOGIC FRAMEWORK OF PART OF THE COASTAL PLAIN OF TEXAS

INTRODUCTION

This report has been prepared to illustrate the stratigraphic and hydrogeologic framework of a part of the Coastal Plain of Texas from the Sabine River to the Rio Grande. It is the outgrowth of a project that has as its ultimate objective the construction of a digital ground-water flow model, if feasible or desirable, of at least a part of the Miocene aquifers in the Gulf Coastal Plain of Texas. The model would serve as a tool for planning the development of the ground-water supplies. Work on the project is being done by the U.S. Geological Survey in cooperation with the Texas Department of Water Resources.

During the course of delineating the Miocene aquifers, which is basic to the design and development of the model, the scope of the study was broadened to include delineations of other hydrogeologic units, as well as delineations of stratigraphic units. As a result, units ranging in age from Paleocene to Holocene were delineated (Table 1). A relationship of stratigraphic units to designated hydrogeologic units was thus established statewide.

Eleven dip sections and 1 strike section are included in this report. The dip sections are spaced about 50 miles (80 km) apart with the most easterly one being near the Sabine River and the most southerly one being near the Rio Grande. Each dip section is about 100 miles (161 km) long and extends from near the coastline to short distances inland from the outcrop of the oldest Miocene formation—the Catahoula Tuff or Sandstone. The strike section, which is about 500 miles (804 km) long (in three segments), extends from the Sabine River to the Rio Grande and joins the dip sections at common control points. This section is from 50-75 miles (80-121 km) inland from the Gulf of Mexico and is essentially parallel to the coastline. The location of the sections and the Catahoula outcrop are shown on Figure 1.

The sections extend from outcrops at the land surface to maximum depths of 7,600 feet (2,316 m) below sea level. Selected faunal occurrences, where known or inferred by correlation from nearby well logs, are included. The extent of sand that contains water having less than 3,000 mg/l (milligrams per liter) of dissolved solids was estimated from the electrical characteristics shown by the logs. This information is included on all of the sections.

Although faulting is common in the Coastal Plain and is complex in some areas, all faults have been omitted from the sections to maintain continuity of the stratigraphic and hydrogeologic boundaries. The disadvantage of such omission is, of course, the representation of an unrealistic and simplistic picture of unbroken strata with uninterrupted boundaries. In reality, many of the faults have not only broken the hydraulic continuity of the strata but more importantly have become barriers to fluid flow or conduits for cross-formational flow. The sections are presented in this report as Figures 2-15.

Acknowledgements

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Table 1.--Stratigraphic and Hydrogeologic Framework of Part of the Coastal Plain of Texas

Era	System	Series	Stratigraphic Units			Hydrogeologic Units	Selected Faunal Markers	Remarks
CENOZOIC	Quaternary	Holocene	Alluvium			Chicot aquifer		Quaternary System undifferentiated on sections.
		Pleistocene	Beaumont Clay					
			Montgomery Formation					
			Bentley Formation					
			Willis Sand					
	Tertiary	Pliocene	Goliad Sand			Evangeline aquifer		Goliad Sand overlapped east of Lavaca County.
		Miocene	Fleming Formation			Burkeville confining system	*Potamides matsoni* *Bigenerina nodosaria var. directa* *Bigenerina humblei* *Amphistegina sp.*	
			Oakville Sandstone					Oakville Sandstone included in Fleming Formation east of Washington County.
			Surface: Catahoula Tuff or Sandstone		Subsurface: Upper part of Catahoula Tuff or Sandstone	Jasper aquifer		Catahoula Tuff designated as Catahoula Sandstone east of Lavaca County.
					Anahuac Formation	Catahoula confining system (restricted)	*Discorbis nomada* *Discorbis gravelli* *Heterostegina sp.* *Marginulina idiomorpha*	Anahuac and "Frio" Formations may be Oligocene in age.
					"Frio" Formation		*Textularia mississippiensis*	
		Oligocene(?)	Surface: Frio Clay		Subsurface: Vicksburg Group equivalent	Not discussed as hydrologic units in this report.	*Textularia warreni*	Frio Clay overlapped or not recognized on surface east of Live Oak County.
		Eocene	Jackson Group	Whitsett Formation	Fashing Clay Member			Indicated members of Whitsett Formation apply to south-central Texas. Whitsett Formation east of Karnes County may be, in part or in whole, Oligocene in age.
					Calliham Sandstone Member or Tordilla Sandstone Member			
					Dubose Member		*Marginulina cocoaensis*	
					Deweesville Sandstone Member			
					Conquista Clay Member		*Textularia hockleyensis*	
					Dilworth Sandstone Member		*Massilina pratti*	
				Manning Clay				
				Wellborn Sandstone			*Textularia dibollensis*	
				Caddell Formation				
			Claiborne Group	Yegua Formation			*Nonionella cockfieldensis* *Discorbis yeguaensis* *Eponides yeguaensis* *Ceratobulimina eximia*	
				Cook Mountain Formation				
				Sparta Sand				
				Weches Formation				
				Queen City Sand				
				Reklaw Formation				
				Carrizo Sand				
			Wilcox Group					
		Paleocene	Midway Group					

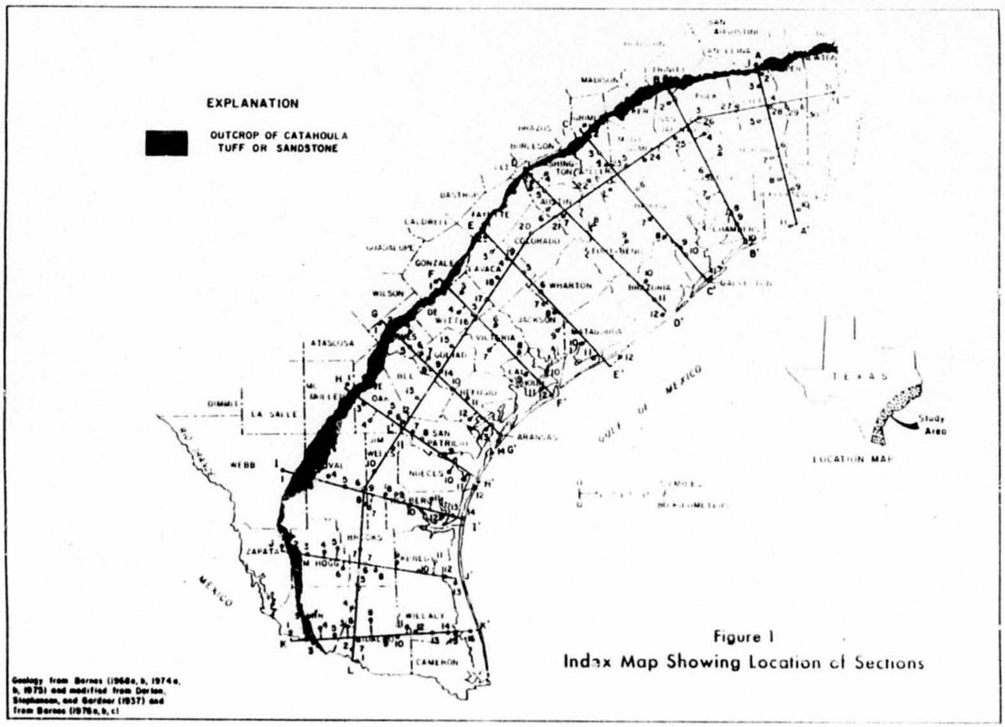

Figure 1
Index Map Showing Location of Sections

subsurface correlations of the Catahoula-Fleming contact, as well as formation thicknesses, will continue to differ.

Burkeville Confining System

The Burkeville confining system, which was named by Wesselman (1967) for outcrops near the town of Burkeville in Newton County, Texas, is delineated on the sections from the Sabine River to near the Rio Grande. It separates the Jasper and Evangeline aquifers and serves to retard the interchange of water between the two aquifers.

The Burkeville has been mapped in this report as a rock-stratigraphic unit consisting predominantly of silt and clay. Boundaries were determined independently from time concepts although in some places the unit appears to possess approximately isochronous boundaries. In most places, however, this is not the case. For example, the entire thickness of sediment in the Burkeville confining system in some areas is younger than the entire thickness of sediment in the Burkeville in other places.

The configuration of the unit is highly irregular. Boundaries are not restricted to a single stratigraphic unit but transgress the Fleming-Oakville contact in many places. This is shown on sections D-D' to G-G' and J-J' (Figures 5-8 and 11). Where the Oakville Sandstone is present, the Burkeville crops out in the Fleming but dips gradually into the Oakville because of facies changes from sand to clay downdip.

The typical thickness of the Burkeville ranges from about 300 to 500 feet (91 to 152 m). However, thick sections of predominantly clay in Jackson and Calhoun Counties account for the Burkeville's gradual increase to its maximum thickness of more than 2,000 feet (610 m) as shown on section F-F' (Figure 7).

The Burkeville confining system should not be construed as a rock unit that is composed entirely of silt and clay. This is not typical of the unit, although examples of a predominance of silt and clay can be seen in some logs in sections H-H' and I-I' (Figures 9-10). In most places, the Burkeville is composed of many individual sand layers, which contain fresh to slightly saline water; but because of its relatively large percentage of silt and clay when compared to the underlying Jasper aquifer and overlying Evangeline, the Burkeville functions as a confining unit.

Evangeline Aquifer

The Evangeline aquifer, which was named and defined by Jones (Jones, Turcan, and Skibitzke, 1954) for a ground-water reservoir in southwestern Louisiana, has been mapped also in Texas, but heretofore has been delineated no farther west than Washington, Austin, Fort Bend, and Brazoria Counties. Its presence as an aquifer and its hydrologic boundaries to the west have been a matter of speculation. D. G. Jorgensen, W. R. Meyer, and W. H. Sandeen of the U.S. Geological Survey (written commun., March 1, 1976) recently refined the delineation of the aquifer in previously mapped areas and continued its delineation to the Rio Grande. The boundaries of the Evangeline as they appear on the sections in this report are their determinations.

The Evangeline aquifer has been delineated in this report essentially as a rock-stratigraphic unit. Although the aquifer is composed of at least the Goliad Sand, the lower boundary transgresses time lines to include sections of sand in the Fleming Formation. The base of the Goliad Sand at the outcrop coincides with the base of the Evangeline only in South Texas as shown in sections H-H' to K-K' (Figures 9-12). Elsewhere, the Evangeline at the surface includes about half of the Fleming outcrop. The upper boundary of the Evangeline probably follows closely the top of the Goliad Sand where present, although this relationship is somewhat speculative.

The Evangeline aquifer is typically wedge shaped and has a high sand-clay ratio. Individual sand beds are characteristically tens of feet thick. Near the outcrop, the aquifer ranges in thickness from 400 to 1,000 feet (122 to 305 m), but near the coastline, where the top of the aquifer is about 1,000 feet (305 m) deep, its thickness averages about 2,000 feet (610 m). The Evangeline is noted for its abundance of good quality ground water and is considered one of the most prolific aquifers in the Texas Coastal Plain. Fresh to slightly saline water in the aquifer, however, is shown to extend to the coastline only in section J-J' (Figure 11).

Chicot Aquifer

The Chicot aquifer, which was named and defined by Jones (Jones, Turcan, and Skibitzke, 1954) for a ground-water reservoir in southwestern Louisiana, is the youngest aquifer in the Coastal Plain of Texas. Over the years, the aquifer gradually was mapped westward from Louisiana into Texas where, heretofore, its most westerly mapped limit was Austin, Fort Bend, and Brazoria Counties. In this report, the delineation of the Chicot was refined in previously mapped areas and extended to near the Rio Grande by D. G. Jorgensen, W. R. Meyer, and W. M. Sandeen of the U.S. Geological Survey (written commun., March 1, 1976).

It is believed that the base of the Chicot in some areas has been delineated on the sections in this report as the base of the Pleistocene. Early work in Southeast Texas indicates that the Chicot probably comprises the Willis Sand, Bentley Formation, Montgomery Formation, and Beaumont Clay of Pleistocene age and any overlying Holocene alluvium (Table 1). The problem that arises in this regard is that the base of the Pleistocene is difficult to pick from electrical logs. Thus any delineation of the base of the Chicot in the subsurface as the base of the Pleistocene is automatically suspect. At the surface, the base of the Chicot on the sections has been picked at the most landward edge of the oldest undissected coastwise terrace of Quaternary age. In practice, the delineation of the Chicot in the subsurface, at least on the sections in Southeast Texas, has been based on the presence of a higher sand-clay ratio in the Chicot than in the underlying Evangeline. In some places, a prominent clay layer was used as the boundary. Differences in hydraulic conductivity or water levels in some areas also served to differentiate the Chicot from the Evangeline.

The high percentage of sand in the Chicot in Southeast Texas, where the aquifer is noted for its abundance of water, diminishes southwestward. Southwest of section G-G' (Figure 8) the higher clay content of the Chicot and the absence of fresh to slightly saline water in the unit is sharply contrasted with the underlying Evangeline aquifer that still retains relatively large amounts of sand and good quality water.

REFERENCE 5

Lead Products Co.

INCORPORATED

Fabricators

PHONE (713) 224-9546 709 NORTH VELASCO P.O. BOX 1341

HOUSTON, TEXAS 77251-1341

October 11, 1988

U.S. EPA Region 6
Sites Notification
First Interstate Tower
1445 Ross Avenue
Dallas, Texas 75202

Re: CERCLA Section 103(c) Notification

Dear Sir or Madam:

For the past several years, various lead companies in Houston have been negotiating with the Texas Water Commission concerning the hazardous nature of discarded lead batteries. We have recently learned that the TWC has decided that the lead batteries and lead-contaminated soils are not considered as a "by-product" under the TWC regulations. We have been advised that inasmuch as the batteries contain lead, the disposal of these substances may be regulated under CERCLA. Our lawyers have further advised us that under Secion 103(c) of CERCLA, our company was to have notified the EPA by June 9, 1981, of the location of all faci ties in which hazardous substances were disposed. Inasmuch as we are unable to locate any company records that indicate that such notification was given, we are providing the requested notification herein.

By way of background information, the following is a brief history of the operations of the company. Lead Products Company, Inc. is a small corporation which began as a lead smelting business in the 1930's. Lead was removed from discarded batteries and utilized to make pipes and other equipment. After the majority of lead was removed from the batteries, they were used as fill material at our plant site and two other nearby locations. It is our understanding that all of the lead could not be removed from the batteries and therefore the buried batteries contain some residual lead. We believe this type of disposal ceased in the mid-1960's.

We have attached for your information three sets of the notification form that was published in the April 15, 1981, Federal Register. We have provided forms for the following locations:

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OCT 20 1988

6W-EA

0428

Lead Products Co.

INCORPORATED

Fabricators

PHONE (713) 224-9546 709 NORTH VELASCO P.O. BOX 1341

HOUSTON, TEXAS 77251-1341

(1) Lead Products Company, Inc. facility located at 709 N. Velasco in Houston. This is our present plant site. We believe the disposal activities occurred at this location from approximately 1945 until sometime in the 1950's.

(2) Childs Truck Equipment Inc. site located in the 800 block of N. Velasco in Houston. Prior to being located at the present address, the company rented this site from its owners. We understand that lead batteries may have been used for fill material at this site from approximately 1935 until 1945.

(3) KNUZ Radio Tower site located at 315 North Ennis in Houston. During the 1950's and 1960's, our company contracted with the owner of the Radio Tower to provide batteries for fill material for the property.

At the present time Lead Products is undertaking an investigation to determine the extent of contamination at the plant site. We are currently involved in negotiations with the City of Houston on this matter and will be contacting the Texas Water Commission to determine the proper remedial action to be performed. We are also attempting to obtain permission from the present owners of the Childs site to obtain samples from that location. Lead Products presently does not have any plans to take any action at the Radio Tower site.

We trust the information provided herein will be sufficient to meet the notification requirements under the regulations. If you require any additional information, please do not hesitate to call me at (713) 224-9546.

Very truly yours,

LEAD PRODUCTS COMPANY, INC.

Robert Simonds

Robert Simonds, President

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6W-EA

0424

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

A Person Required to Notify:
Enter the name and address of the person or organization required to notify.

Name: Lead Products Company, Inc.
Street: P. O. Box 1341
City: Houston State: TX Zip Code: 77251

B Site Location:
Enter the common name (if known) and actual location of the site.

Name of Site: Lead Products Company Facility
Street: 709 N. Velasco P O Box 1341 77001
City: Houston County: Harris State: TX Zip Code: 77003

C Person to Contact:
Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Robert Simonds, President
Phone: (713) 224-9546

D Dates of Waste Handling:
Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): Approx. 1945 To (Year): Sometime in 1950's.

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1 ☐ Organics
2 ☐ Inorganics
3 ☐ Solvents
4 ☐ Pesticides
5 ☒ Heavy metals
6 ☐ Acids
7 ☐ Bases
8 ☐ PCBs
9 ☐ Mixed Municipal Waste
10 ☐ Unknown
11 ☐ Other (Specify)

Source of Waste:
Place an X in the appropriate boxes.

1 ☐ Mining
2 ☐ Construction
3 ☐ Textiles
4 ☐ Fertilizer
5 ☐ Paper/Printing
6 ☐ Leather Tanning
7 ☐ Iron/Steel Foundry
8 ☐ Chemical, General
9 ☐ Plating/Polishing
10 ☐ Military/Ammunition
11 ☐ Electrical Conductors
12 ☐ Transformers
13 ☐ Utility Companies
14 ☐ Sanitary/Refuse
15 ☐ Photofinish
16 ☐ Lab/Hospital
17 ☐ Unknown
18 ☒ Other (Specify)
Lead Smelting
Recovery Operations

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

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0430

Notification of Hazardous Waste Site — Side Two

Waste Quantity

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1 ☐ Piles
2 ☐ Land Treatment
3 ☒ Landfill
4 ☐ Tanks
5 ☐ Impoundment
6 ☐ Underground Injection
7 ☐ Drums, Above Ground
8 ☐ Drums, Below Ground
9 ☐ Other (Specify) ____

Total Facility Waste Amount

cubic feet: Unknown

gallons: Unknown

Total Facility Area

square feet: Unknown

acres: Approx. 4

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☒ Suspected ☐ Likely ☐ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

Please see attached map.

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I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

See cover letter for explanation.

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name: Robert Simonds

Street: P. O. Box 1341

City: Houston State: TX Zip Code: 77251

Signature: Robert Simonds Date: 10/11/88

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

[FR Doc. 81-11380 Filed 4-14-81; 8:45 am]
BILLING CODE 6560-30-C

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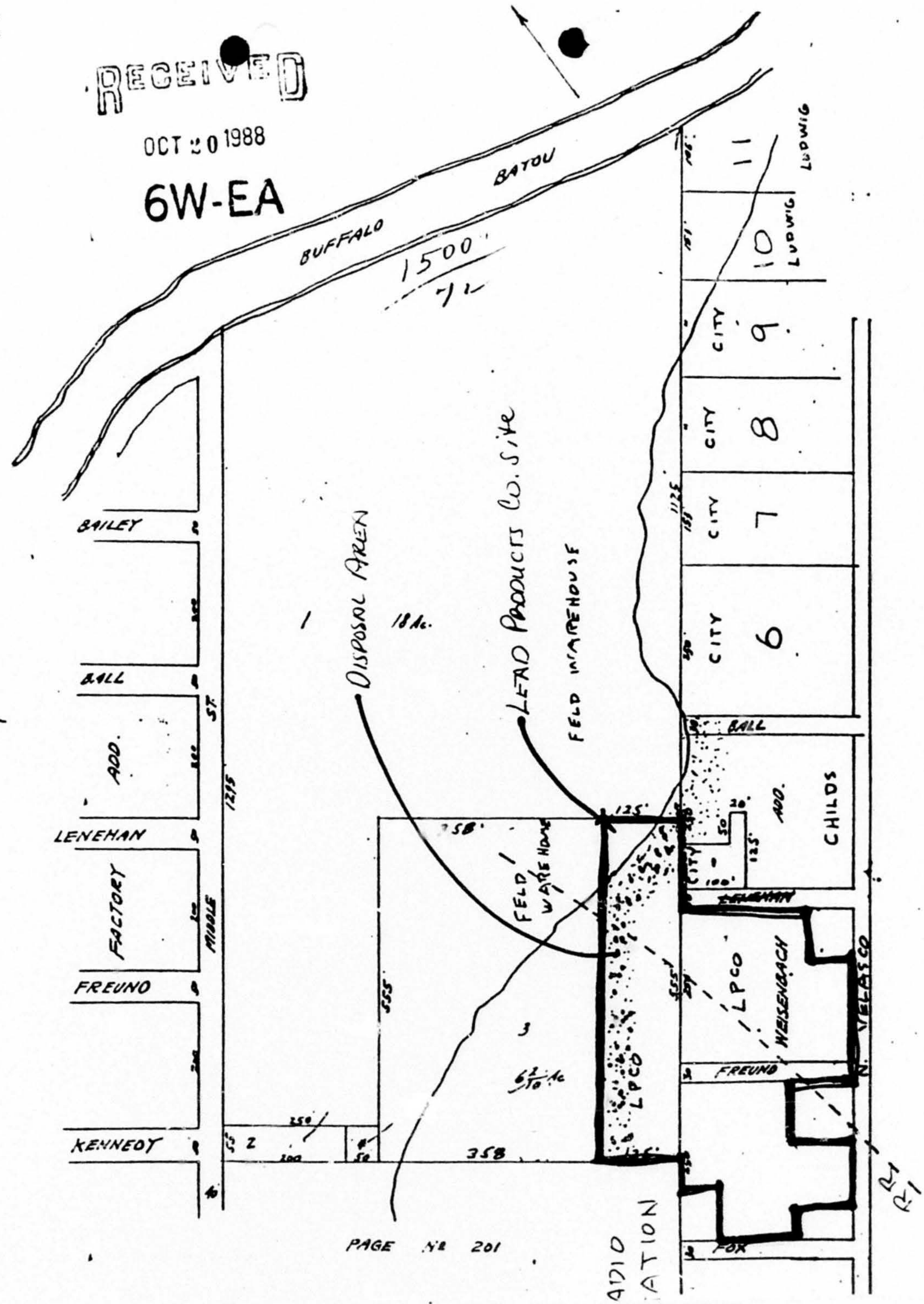


PAGE No 201

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by

Benjamin Feiner/Joseph J. Fitzgerald/Thomas J. Haley/Elizabeth K. Weisburger

VAN NOSTRAND REINHOLD COMPANY

NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

SYNS:
1-DODECANETHIOL
N-DODECYL MERCAPTAN
1-DODECYL MERCAPTAN
N-LAURYL MERCAPTAN
1-MERCAPTODODECANE
NCI-C60935

TOXICITY DATA:	CODEN:
cyt-rat-ihl 5020 ug/m3/16W	BZARAZ 27,102,74

Reported in EPA TSCA Inventory, 1980.
THR: See mercaptans. MUT data.
Fire Hazard: Low.
To Fight Fire: Alcohol foam.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x.

LAURYLPYRIDINIUM LAURYLXANTHATE

CAS RN: 14917965 NIOSH #: UU 5775000
mf: $C_{17}H_{30}N \cdot C_{13}H_{25}OS_2$; mw: 509.98

TOXICITY DATA: 2	CODEN:
skn-rbt 500 mg/24H MOD	28ZPAK -,174,72
eye-rbt 20 mg/24H SEV	28ZPAK -,174,72
orl-rat LD50:802 mg/kg	28ZPAK -,174,72

THR: MOD orl. A skn, eye irr.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and SO_x.

LAURYL SULFATE, SODIUM SALT, CONDENSED WITH 3 MOLES OF ETHYLENE OXIDE

NIOSH #: OF 5725000

SYNS:
SODIUM SALT OF SULFATED BROAD-CUT COCONUT ETHOXY(3EO) ALCOHOL
SODIUM SALT OF SULFATED ETHOXYLATE OF BROAD-CUT LAURYL ALCOHOL

TOXICITY DATA: 2	CODEN:
skn-rbt 10 mg MLD	JSCCA5 22,411,71
skn-rbt 230 mg/5W open MLD	JSCCA5 22,411,71
skn-gpg 115 mg/5W open MLD	JSCCA5 22,411,71

THR: A skn irr.
Disaster Hazard: When heated to decomp it emits tox fumes of SO_x.

LAVANDIN OIL

CAS RN: 8022159 NIOSH #: OF 6097500

Main constituent is Linalool; found in plant Lavanoula Hybrida Reverchon; prepared by steam distillation of the flowering stalks of the plant.

SYN: OIL OF LAVANDIN

TOXICITY DATA: 2	CODEN:
skn-rbt 500 mg/24H MLD	FCTX[illegible] 443,76

Reported in EPA TSCA Inventory, 1980.
THR: A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVATAR

NIOSH #: OF 6097840

Coal tar distillates in a shampoo base.

TOXICITY DATA:	CODEN:
mma-sat 25 ug/plate	TOLED5 3,325,79

THR: MUT data.
Disaster Hazard: When heated to decomp it emits acr smoke and fumes.

LAVENDER ABSOLUTE

NIOSH #: OF 61000C

Found in the flowers of Lavandula Officinalis chaix. Th main constituent is Linalyl Acetate: prepared from alco holic extract of a residue, which is extracted from plan material using an organic solvent; a dark green liquid

TOXICITY DATA: 1	CODEN:
skn-rbt 500 mg/24H MLD	FCTXAV 14,443,76
orl-rat LD50:4250 mg/kg	FCTXAV 14(5),443,76

THR: LOW orl; A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LAVENDER OIL

CAS RN: 8000280 NIOSH #: OF 6110000

Main constituent is linalyl acetate. Found in the plant Lavandulaofficinalif choix (Fam. Labiate). Prepared by steam distillation of the flowering stalks of the plant.

SYNS:
LAVENDEL OEL (GERMAN)
OIL OF LAVENDER

TOXICITY DATA: 1	CODEN:
skn-rbt 500 mg/24H MLD	FCTXAV 14,443,76
orl-rat LD50:9040 mg/kg	PHARAT 14,435,59

Reported in EPA TSCA Inventory, 1980.
THR: LOW orl. A skn irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

LD-813

CAS RN: 64083052 NIOSH #: OF 6730000

Commercial mixture of aromatic amines containing approx. 40% MOCA

TOXICITY DATA: 3	CODEN:
orl-rat TDLo:37 gm/kg/2Y-C:CARC	TXAPA9 31,159,75

THR: An exper CARC. See also aromatic amines.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

LEAD

CAS RN: 7439921 NIOSH #: OF 7525000
mf: Pb; mw: 207.19

Bluish-gray, soft metal. mp: 327.43°, bp: 1740°, d: 11.34 @ 20°/4°, vap. press: 1 mm @ 973°.

SYNS:
C.I. 77575
LEAD FLAKE
LEAD S2
OLOW (POLISH)

TOXICITY DATA: 3	CODEN:
ori-rat TDLo:790 mg/kg (MGN)	AEHLAU 23,102,71
ori-rat TDLo:1140 mg/kg (14D pre-21D post)	PHMCAA 20,201,78
ori-mus TDLo:1120 mg/kg (MGN)	AEHLAU 23,102,71
ori-mus TDLo:6300 mg/kg (1-21D preg)	EXPEAM 31,1312,75
ori-mus TDLo:12600 mg/kg (1-21D preg)	EXPEAM 31,1312,75
ori-mus TDLo:4800 mg/kg (1-16D preg)	BECTA6 18,271,77
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXPEAM 25,56,69
ori-dom TDLo:662 mg/kg (1-21W preg)	TXAPA9 25,466,73
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXPEAM 25,56,69
ori-wmn TDLo:450 mg/kg/6Y:CNS	JAMAAP 237,2627,77
ipr-rat LDLo:1000 mg/kg	EQSSDX 1,1,75
ori-pgn LDLo:160 mg/kg	HBAMAK 4,1289,35

Carcinogenic Determination: Indefinite IARC** 23,325,80.

TLV: AIR: 0.15 mg/m3 DTLVS* 4,243,80; *Toxicology Review:* TRBMAV 33(1),85,75; PGMJAO 51(601),783,75; JDSCAE 58(12),1767,75; IRXPAT 12,1,73; CTPHBG 55,147,71; CTOXAO 6(3),377,73; QURBAW 7(1),75,74; RREVAH 54,55,75; JAVMA4 164(3),277,74; AEMBAP 40,239,73; CTOXAO 5(2),151,72; FOREAE 7,313,42; KOTTAM 11(11),1300,75; GEIGAI 20(3),291,73; STEVA8 2(4),341,74; CLCHAU 19,361,73; AJMEAZ 38,409,65; 85DHAX PB,254,72; PDTNBH 6,204,77; AMTODM 3,209,77. OSHA Standard: Air: TWA 200 ug/m3 (SCP-O) FEREAC 39,23540,74. Occupational Exposure to Inorganic Lead recm std: Air: TWA 0.10 mg(Pb)/m3 NTIS**. "NIOSH Manual of Analytical Methods" VOL 1 102,191,195,200,2[illegible],214,262, VOL 3 S341. Reported in EPA TSCA Inventory, 1980.

THR: See lead compounds. A hmn CNS. HIGH orl; MOD irr. A common air contaminant. It is a ± CAR of the lungs and kidney and an exper TER.

Fire Hazard: Mod, in the form of dust when exposed to heat or flame. See also powdered metals.

Explosion Hazard: Mod, in the form of dust when exposed to heat or flame.

Incomp: NH_4NO_3, ClF_3, H_2O_2, NaN_3, Na_2C_2, Zr, disodium acetylide; oxidants.

Disaster Hazard: Dangerous; when heated, emits highly tox fumes; can react vigorously with oxidizing materials.

For further information see Vol. 1, No. 1 of *DPIM Report.*

LEAD ACETATE

CAS RN: 301042 NIOSH #: AI 5250000

mf: $C_4H_6O_4 \cdot Pb$; mw: 325.29

Trihydrate, colorless crystals or white granules or powder. Slightly acetic odor; slowly effloresces; d: 2.55; mp: 75° when rapidly heated. Decomp above 200°; very sol in glycerol. Keep well closed.

SYNS:

ACETIC ACID LEAD (2+) SALT	LEAD DIBASIC ACETATE
ACETATE DE PLOMB (FRENCH)	NORMAL LEAD ACETATE
BLEIACETAT (GERMAN)	PLUMBOUS ACETATE
LEAD (2+) ACETATE	SALT OF SATURN
LEAD(II) ACETATE	SUGAR OF LEAD
LEAD DIACETATE	

TOXICITY DATA: 3	CODEN:
dns-rat-ipr 50 ug/kg	PSEBAA 143,446,73
spm-mus-par 1 gm/kg	ARTODN 46,159,80
ori-rat TDLo:7854 mg/kg (6-16D preg)	FCTXAV 13,629,75
ori-rat TDLo:1800 mg/kg (1-22D preg/14D post)	TOLED5 7,373,80
ori-rat TDLo:113 gm/kg (70D pre-21D post)	PBBHAU 8,347,78
ori-mus TDLo:3150 mg/kg (1-21D preg)	CRSBAW 170,1319,76
ori-mus TDLo:4800 mg/kg (1-8D preg)	CRSBAW 172,1037,78
ori-mus TDLo:9 gm/kg (7-21D preg)	CRSBAW 170,1319,76
ipr-mus TDLo:35 mg/kg (8D preg)	BIMDB3 30,223,79
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXMPA6 7,208,67
ivn-ham TDLo:50 mg/kg (8D preg)	EXPEAM 25,56,69
ipr-pgn LDLo:150 mg/kg	ARTODN 46,265,80
cyt-hmn:lym 1 mmol/L/24H	TXCYAC 10,67,78
cyt-mus-orl 16800 mg/kg/4W	JTEHD6 2,619,77
cyt-mky-orl 5760 mg/kg/64W	MUREAV 45,77,77
ipr-mus TDLo:15 mg/kg/(8D preg):TER	BIMDB3 30,223,79
ivn-ham TDLo:50 mg/kg/(8D preg):TER	EXMPA6 7,208,67
ori-rat TDLo:250 gm/kg/47W-C:ETA	BJCAAI 16,283,62
ipr-rat LDLo:204 mg/kg	JPETAB 38,161,30
ipr-mus LD50:120 mg/kg	COREAF 256,1043,63
ori-dog LDLo:300 mg/kg	HBAMAK 4,1289,35
scu-dog LDLo:80 mg/kg	HBAMAK 4,1289,35
ivn-dog LDLo:300 mg/kg	EQSSDX 1,1,75
scu-cat LDLo:100 mg/kg	HBAMAK 4,1289,35
scu-rbt LDLo:300 mg/kg	HBAMAK 4,1289,35
ivn-rbt LDLo:50 mg/kg	EQSSDX 1,1,75
scu-frg LDLo:1600 mg/kg	HBAMAK 4,1289,35

Carcinogenic Determination: Animal Positive IARC** 23,325,80; Human Suspected IARC** 23,325,80. *Toxicology Review:* ADTEAS 5,51,72; ENVRAL 13,36,77; 85DHAX Pb,256,72. OSHA Standard: Air: TWA 200 ug(Pb)/m3 (SCP-O) FEREAC 29,23540,74. Occupational Exposure to Inorganic Lead recm std: Air: TWA 0.10 mg(Pb)/m3 NTIS**. Reported in EPA TSCA Inventory, 1980.

THR: MUT data. An exper + CARC, TER, ETA. A susp hmn CARC; HIGH ipr, orl, scu, ivn. See also lead compounds. A poison. An insecticide.

Disaster Hazard: When heated to decomp it emits tox fumes of Pb.

Incomp: $KBrO_3$; acids, sol sulfates, citrates, tartrates, chlorides, carbonates, alkalies, tannin phosphates, resorcinol, salicylic acid, phenol, chloral hydrate, sulfites, vegetable infusions, tinctures.

For further information see Vol. 1, No. 4 of *DPIM Report.*

LEAD ACETATE, BASIC

CAS RN: 1335326 NIOSH #: OF 8750000

mf: $C_4H_{10}O_8Pb_3$; mw: 807.71

REFERENCE 7

RECORD OF COMMUNICATION	(Record of Item Checked Below) _X_ Phone Call ___ Discussion ___ Field Trip ___ Conference ___ Other(Specify)	
TO: Don MacInnes. Houston Public Works Water Production Office 105 Sabine, Houston, TX (713) 227-6558	From: Kelly Bowles, FIT Geologist Kelly Bowles	Date: 1/5/89 Time: 1:00 pm

SUBJECT: Ground Water and Surface Water Use - City of Houston

SUMMARY OF COMMUNICATION

Q. Where does the public water supply for the study area in the City of Houston come from?

A. Drinking water for that area is a mixture of surface water and ground water. Surface water comes from Lake Houston, 17 miles north. Ground water comes from City of Houston water supply wells, four of which are located within four miles of your area of concern: Central #19, Central #20, Central #21 and Scott Street #6. Approximately 60% comes from surface water and 40% from groundwater (see attachment).

Q: What are the uses of Buffalo Bayou?

A. Buffalo Bayou is primarily a storm sewer outlet with limited recreational uses - such as canoeing. There is no surface water withdrawn from Buffalo Bayou for public water supply use in the City of Houston. It is not used for irrigation either.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

OVERSIZE DOCUMENT

The page that occupies this position in the paper document is:

Oversized document number:

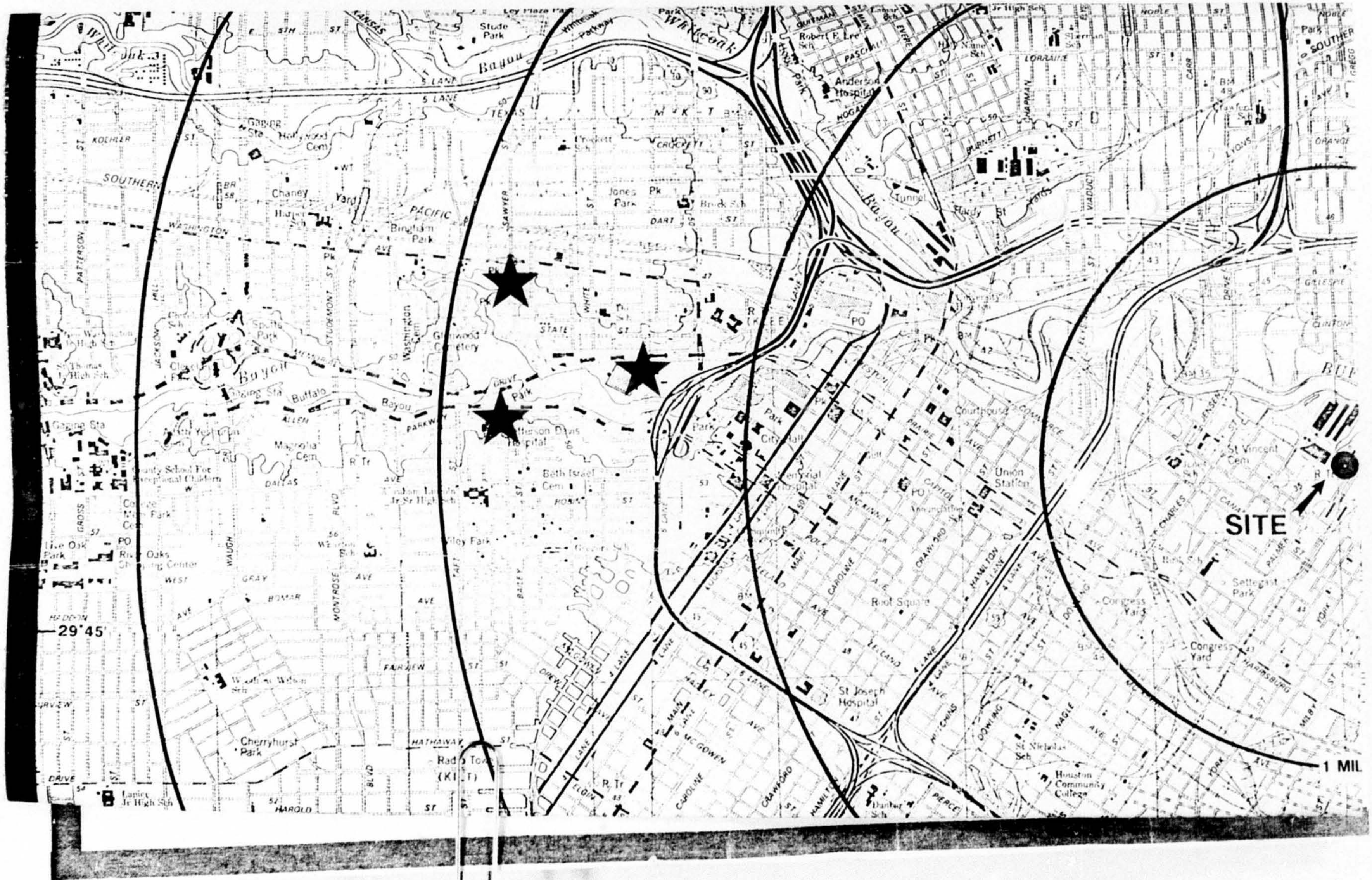
TX0987979275
SF SA VOL 02

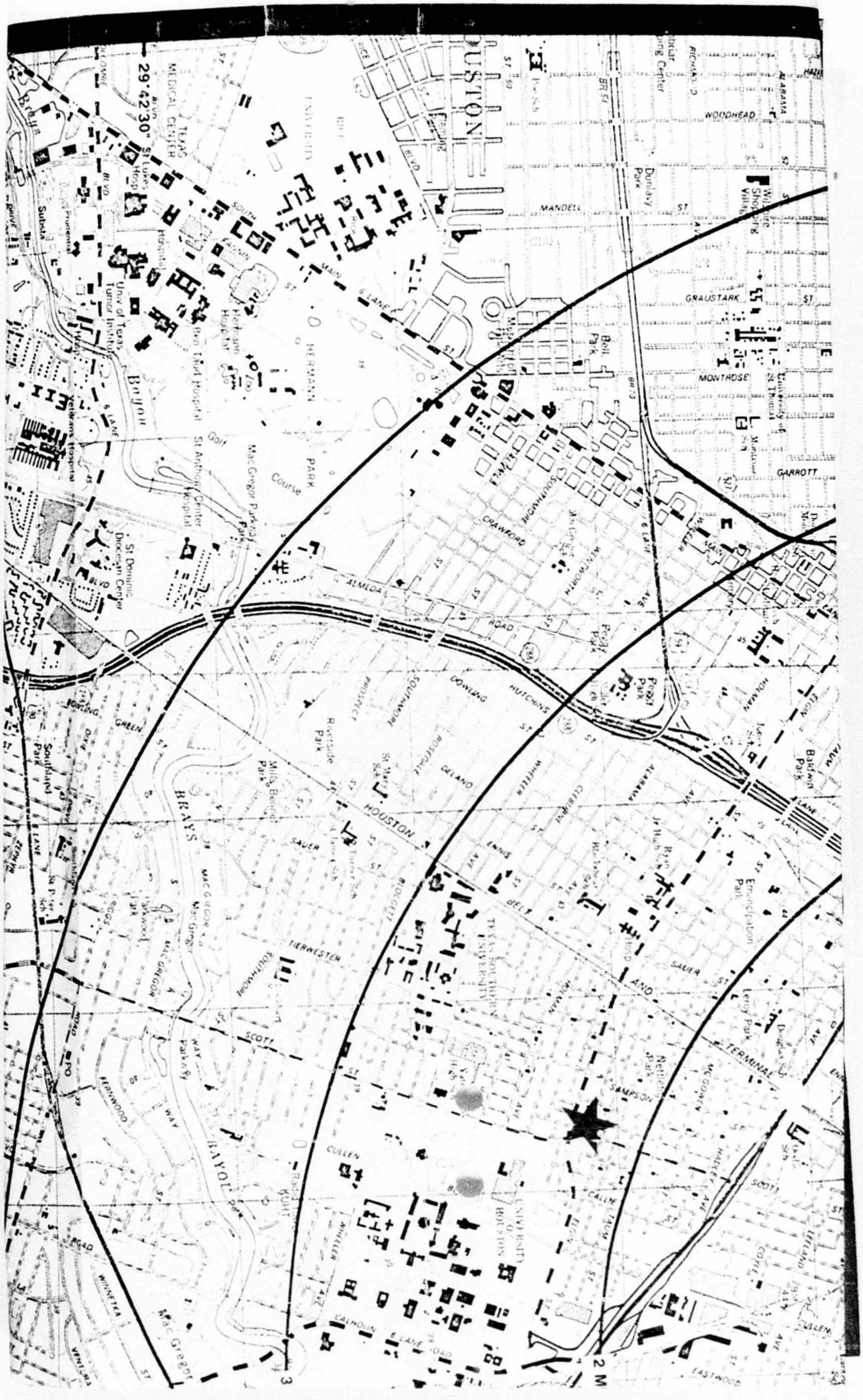
on the roll of 35mm film.

Titled:

R6-HS-R-TXM001


HOUSTON HEIGHTS
95°22'30"
29°47'30"
HOUSTON BELT AND TERMINAL
Graham Park
ASHLAND
34TH
ST
EAST 32D
Burrus Sch
4 LANE
Adath Emeth Cem
Alamo Sch
EAST 26TH
NORTH MAIN
GIBBS
EAST 23D
Hamilton Park
Heights Hosp
PO
EAST 19TH
Cooley Sch
YALE
HEIGHTS
BLVD
OXFORD
Reagan High Sch
Milroy Park
Cove Park
OLSON
11TH
9TH
WEST
All Saints Sch
Jr High Sch
Proctor Plaza Park
Christ the King Sch
Montie Beach Park
NORTHWOOD
AIRLINE DRIVE
STUDEWOOD
MICHAUX
HIGHLAND
MISSOURI
CORDELL
HOUSTON
AVE
Woodland Park
Hollywood Cemetery
Holly Crest Cem
Little White Oak Bayou
Moody Park
IRVINGTON
Irvington Park
AVERILL
HELMERS
Thomas Jefferson Sch
GALE
ENGLISH
FAIRBANKS
ELEANOR
CAPLIN
FULTON
Theodore Roosevelt Sch
FRISCO
Bethany Lutheran Sch
Athletic Field
COCHRAN
ROBERTSON
COLLINGSWORTH
HAYS
LUZON
CHAPMAN
Jefferson Davis High Sch
R Tr
TERMINAL
CRESTON
LOOP
JENSEN
DRIVE
Langston Sch
6 LANE
FLORIDA
Water Tank
LINN
VINTAGE
Ryan Sch
610


SITE
1 MIL
29°45'
Washington Cem
Glenwood Cemetery
Union Station
St Joseph Hospital
Root Square
Jones Park
Cherryhurst Park
Congress Yard
St Vincent Cem
Houston Community College
Jefferson Davis Hospital
Beth Israel Cem
Radio Tower (KILT)
Anderson Hospital
Stude Park
Bingham Park
City Hall
Courthouse
SOUTHERN PACIFIC
Buffalo Bayou



29°42'30"
TEXAS MEDICAL CENTER
HERMANN PARK
MacGregor Park
UNIVERSITY OF HOUSTON
TEXAS SOUTHERN UNIVERSITY
BRAYS BAYOU
MANDELL
GRAUSTARK
MONTROSE
WOODHEAD
GARROTT
ALMEDA ROAD
DOWLING
HUTCHINS
HOUSTON
SAUER
SCOTT
CULLEN
CALHOUN
SAMPSON
TIERWESTER
BELT AND TERMINAL
Emancipation Park
Baldwin Park
Bell Park
Peck Park
St Dominic Diocesan Center
St Anthony Center Hospital
Ben Taub Hospital
Hermann Hospital
Veterans Hospital
EASTWOOD

ecology and environment, inc.

SIT

LOC

USGS TOPOGRAPHIC MAPS

SIT

NAME HOUSTON HEIGHTS, TEXAS
DATE 1982
REVISED

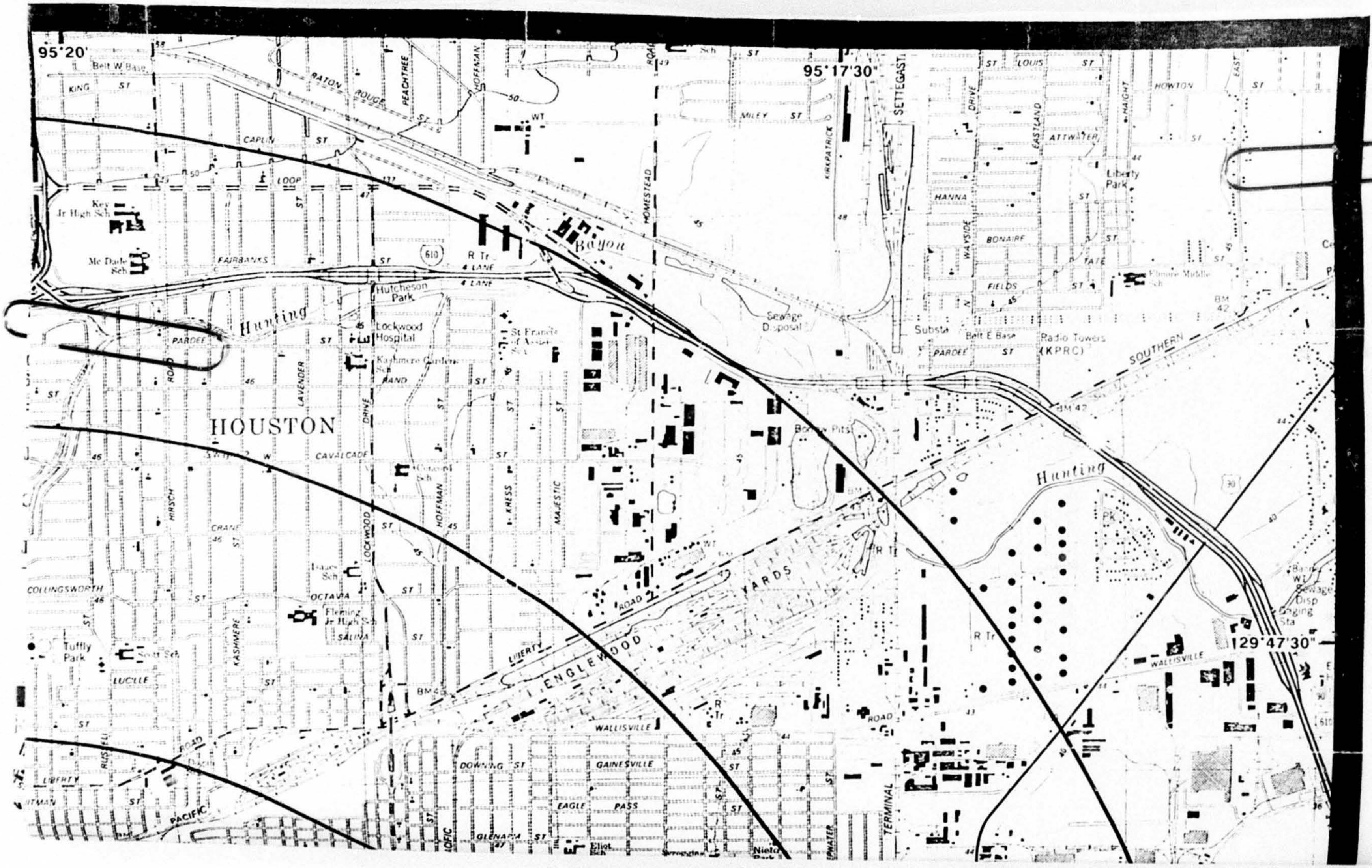
NAME SE
DATE 19
REVISED

NAME BELLAIRE, TEXAS
DATE 1982
REVISED

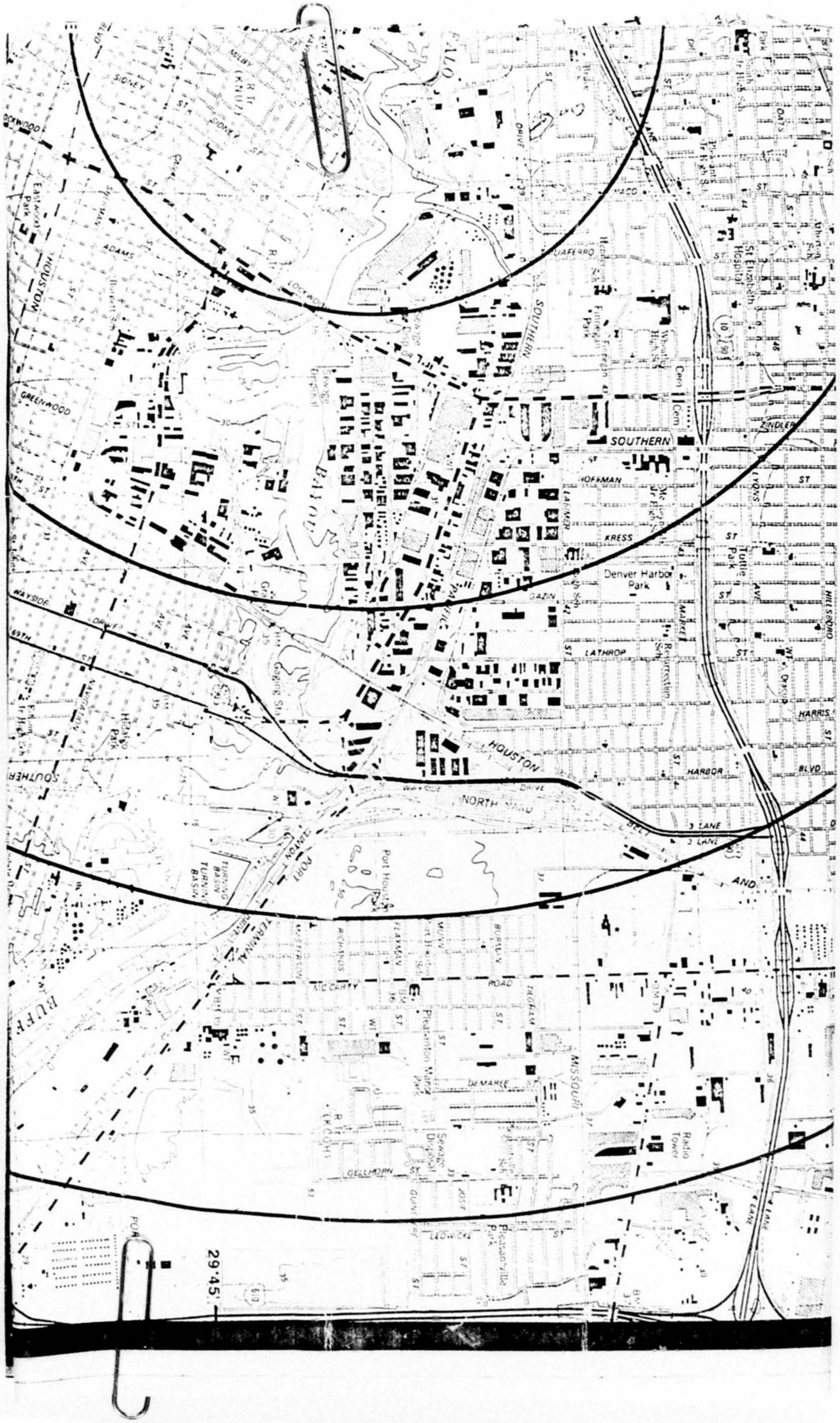
NAME PA
DATE 19
REVISED

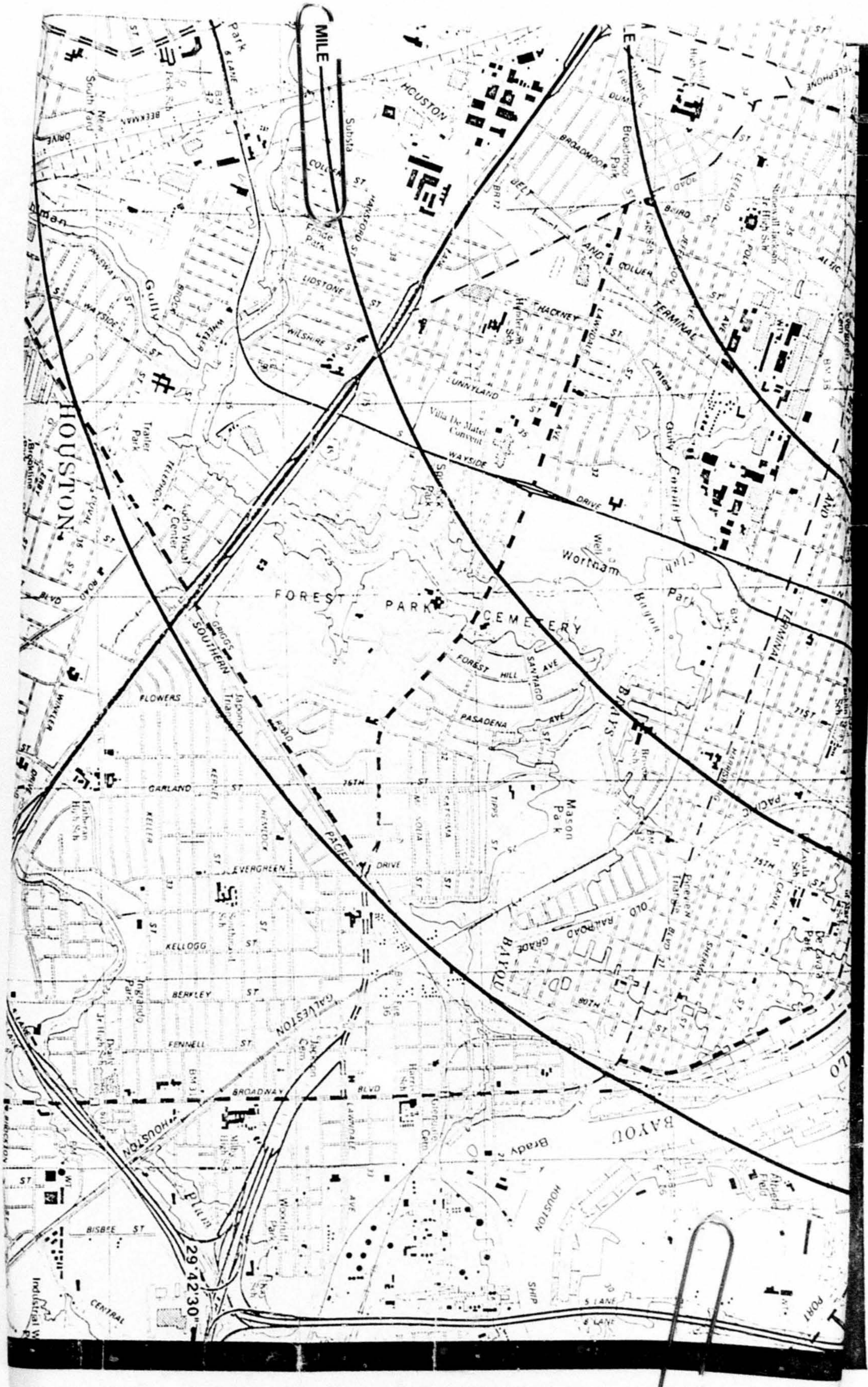
Scale 1:24000

1 1/2 0

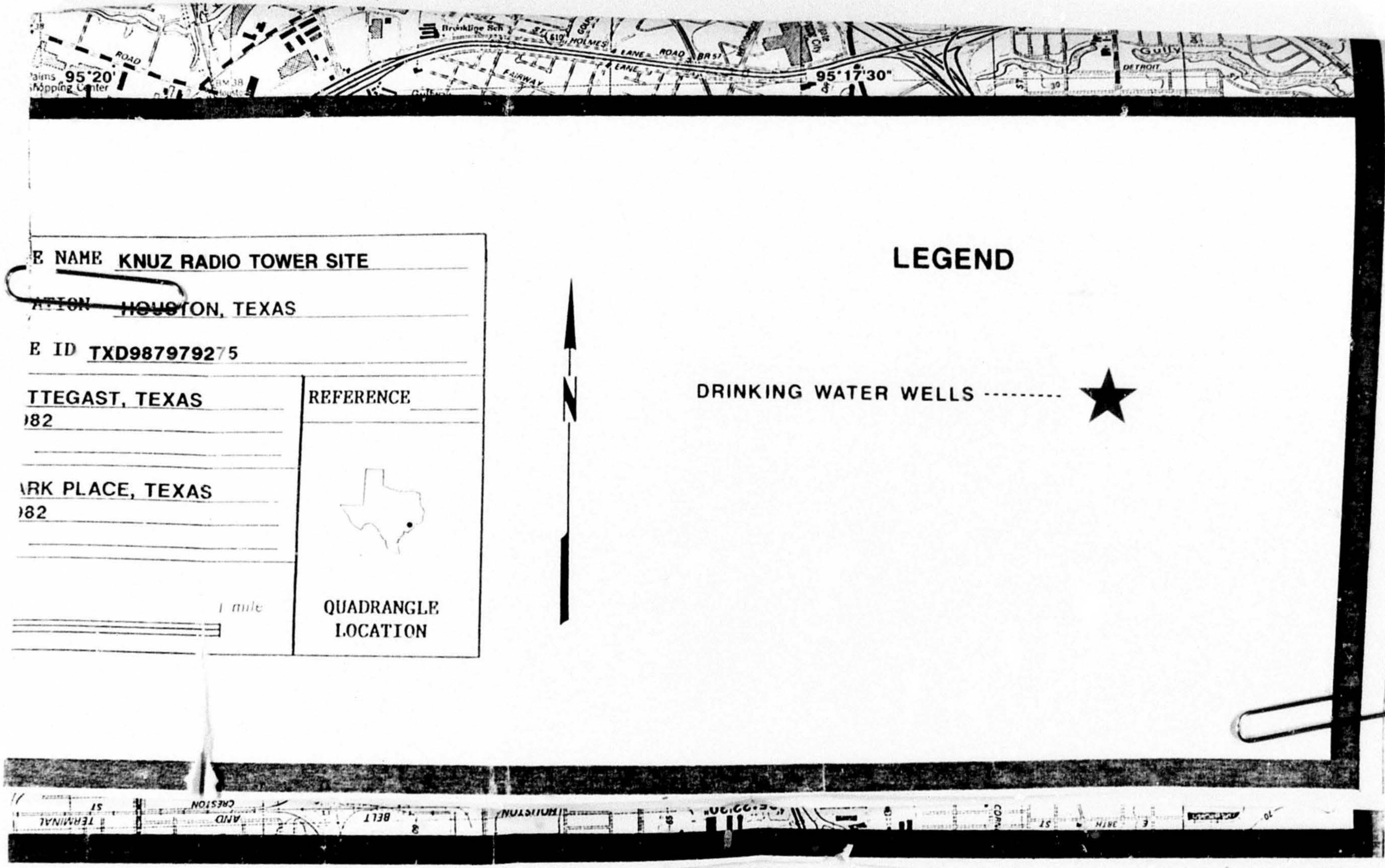


95°20'
95°17'30"
29°47'30"
HOUSTON
Hunting
Bayou
Hunting
SETTEGAST
ENGLEWOOD
YARDS
SOUTHERN
Key Jr High Sch
Mc Dade Sch
Hutcheson Park
Lockwood Hospital
St Francis of Assisi Sch
Fleming Jr High Sch
Isaacs Sch
Tuffly Park
Liberty Park
Sewage Disposal
Borrow Pits
Radio Towers (KPRC)
Substa
Belt E Base
Belt W Base
KING ST
CAPLIN ST
LOOP
FAIRBANKS
PARDEE
HIRSCH ROAD
LAVENDER
KASHMERE
CRANE
COLLINGSWORTH
OCTAVIA
SALINA
LUCILE
RUSSELL
LIBERTY
PACIFIC
CAVALCADE
LOCKWOOD DRIVE
HOFFMAN
KRESS
MAJESTIC
HOMESTEAD ROAD
RATON
ROUGE
PEACHTREE
MILEY ST
KIRKPATRICK
HANNA
WAYSIDE DRIVE
BONAIRE
FIELDS
EASTLAND
ATTWATER
HAIGHT
HOWTON
LOUIS ST
TATE
WALLISVILLE
DOWNING ST
GAINESVILLE
EAGLE
PASS
GLENARM
TERMINAL
4 LANE
610
30
BM 42
R Tr
WT


SIDNEY
ADAMS
HOUSTON
GREENWOOD
WAYSIDE
DRIVE
69TH
NAVIGATION
Hidalgo Park
SOUTHERN
HOFMAN
KRESS
Denver Harbor Park
GAZIN
LATHROP
HARBOR
BLVD
HARRIS
HILLSBORO
St Elizabeth Hospital
Tuttle Park
ZINDLER
LYONS
WACO
BAYOU
Gaging Sta
NORTH YARD
3 LANE
TURNING BASIN
Port Houston
PORT
TERMINAL
McCARTY
ROAD
Pleasanton Manor Park
DeMAREE
MISSOURI
Radio Tower
Sewage Disposal
GELLHORN
LEDWICKE
Pleasantville Park
29°45'
610



MILE
HOUSTON
BROADMOOR
BELT
TERMINAL
COLLIER
WAYSIDE
DRIVE
SUNNYLAND
Villa De Matel Convent
Wortham Park
FOREST PARK CEMETERY
FOREST HILL AVE
PASADENA AVE
Trailer Park
SOUTHERN
PACIFIC
GARLAND ST
EVERGREEN
KELLOGG ST
BERKLEY ST
FENNELL ST
BROADWAY BLVD
GALVESTON
Mason Park
BAYOU
OLD RAILROAD GRADE
Brady
HOUSTON SHIP
BISBEE ST
CENTRAL
29°42'30"
FLOWERS


95°20'
95°17'30"
E NAME KNUZ RADIO TOWER SITE
ATION HOUSTON, TEXAS
E ID TXD987979275
TTEGAST, TEXAS
)82
ARK PLACE, TEXAS
)82
1 mile
REFERENCE
QUADRANGLE LOCATION
N
LEGEND
DRINKING WATER WELLS

HC80-2-134

Census Tracts

HOUSTON, TEX.

STANDARD METROPOLITAN STATISTICAL AREA

Section 1 of 2

1980 Census of Population and Housing

U.S. Department of Commerce
BUREAU OF THE CENSUS

1980 Census of Population and Housing

Census Tracts

HOUSTON, TEX.

STANDARD METROPOLITAN STATISTICAL AREA

PHC80-2-184

Section 1: Tables P-1—P-17

Issued July 1983

U.S. Department of Commerce
Malcolm Baldrige, Secretary
Robert G. Dederick, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS
Bruce Chapman, Director

Table P-1. General Characteristics of Persons: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Census Tracts

Census Tracts	Cloverleaf (CDP), Harris County		Deer Park city, Harris County					Friendswood city (pt.), Harris County	Houston city (pt.), Harris County			
	Tract 230.01*	Tract 230.04*	Tract 260.01	Tract 260.02	Tract 260.03*	Tract 260.04*	Tract 261*	Tract 275*	Tract [illegible]	Tract 201.01	Tract 201.02	Tract 202
AGE												
Total persons	7 932	9 385	4 587	8 343	5 221	4 497	-	-	2 145	3 385	5 137	8 186
Under 5 years	358	454	437	542	54	406	-	-	4	57	24	488
5 to 9 years	[illegible]	449	353	530	510	436	-	-	[illegible]	79	48	465
10 to 14 years	745	722	481	427	520	477	-	-	48	17	473	456
15 to 19 years	800	448	158	174	445	470	-	-	72	153	45	404
20 to 24 years	757	511	178	174	198	451	-	-	257	129	496	354
25 to 34 years	1 146	614	301	497	279	547	-	-	102	175	559	226
35 to 44 years	1 215	111	589	362	163	527	-	-	102	153	412	762
45 to 54 years	314	567	448	396	196	446	-	-	179	159	421	701
55 to 64 years	401	390	219	215	74	232	-	-	110	150	422	514
65 to 74 years	78	152	35	39	55	77	-	-	54	176	410	378
75 years and over	45	17	28	47	7	28	-	-	18	107	227	140
3 and 4 years	172	148	83	194	126	60	-	-	9	37	108	361
16 years and over	5 552	5 781	2 136	5 736	3 426	3 081	-	-	975	2 443	3 477	5 405
18 years and over	5 328	5 426	2 971	5 338	3 237	2 881	-	-	932	2 293	3 277	5 045
21 years and over	4 851	4 760	2 822	4 899	3 032	2 613	-	-	751	2 096	2 940	4 504
60 years and over	230	739	138	353	137	187	-	-	330	562	842	798
62 years and over	213	507	248	273	110	147	-	-	283	484	756	565
Median	26.6	25.7	27.9	27.4	25.5	25.1	-	-	34.3	28.3	24.8	23.5
Female	4 002	4 594	2 281	4 159	2 541	2 215	-	-	552	1 864	2 766	3 897
Under 5 years	323	428	221	309	262	204	-	-	25	32	248	437
5 to 9 years	353	423	212	378	274	218	-	-	23	17	263	412
10 to 14 years	365	356	129	453	264	225	-	-	23	65	231	421
15 to 19 years	410	484	56	454	129	133	-	-	15	96	149	404
20 to 24 years	405	131	58	290	204	122	-	-	15	52	185	365
25 to 34 years	817	726	104	302	543	414	-	-	28	214	279	560
35 to 44 years	565	153	128	373	152	121	-	-	15	54	246	272
45 to 54 years	337	467	125	454	89	216	-	-	13	214	249	333
55 to 64 years	86	130	101	233	86	99	-	-	10	119	252	318
65 to 74 years	58	96	55	80	27	45	-	-	33	162	149	195
75 years and over	33	50	32	33	11	18	-	-	22	29	115	78
3 and 4 years	129	174	91	143	107	81	-	-	9	56	101	184
16 years and over	2 884	3 309	1 580	2 912	1 695	1 519	-	-	474	1 412	1 966	2 544
18 years and over	2 708	3 119	1 503	2 730	1 602	1 428	-	-	466	1 327	1 885	2 377
21 years and over	2 477	2 776	1 439	2 501	1 485	1 287	-	-	438	1 218	1 711	2 154
60 years and over	153	408	188	196	73	97	-	-	105	397	492	424
62 years and over	125	340	166	168	63	76	-	-	92	350	437	357
Median	26.7	25.8	28.2	27.9	25.5	25.1	-	-	35.8	32.6	27.2	23.7
HOUSEHOLD TYPE AND RELATIONSHIP												
Total persons	7 932	9 385	4 587	8 343	5 221	4 497	-	-	2 145	3 385	5 137	8 186
In households	7 932	9 385	4 511	8 343	5 221	4 497	-	-	1 116	3 384	5 129	8 163
Householder	2 671	3 358	1 397	2 544	1 527	1 421	-	-	741	1 265	1 788	2 111
Family householder	2 150	2 526	1 274	2 321	1 408	1 190	-	-	154	798	1 184	1 773
Nonfamily householder	521	832	123	223	119	231	-	-	587	467	604	338
Living alone	423	714	104	191	94	173	-	-	541	420	553	261
Spouse	1 872	2 139	1 159	2 069	1 304	982	-	-	114	320	509	1 387
Other relatives	3 186	3 627	1 881	3 632	2 305	1 956	-	-	185	1 662	2 677	4 335
Nonrelatives	203	261	74	98	85	138	-	-	76	137	155	330
Inmate of institution	-	-	76	-	-	-	-	-	456	-	-	-
Other, in group quarters	-	-	-	-	-	-	-	-	573	1	8	23
Persons per household	2.97	2.79	3.23	3.28	3.42	3.16	-	-	1.51	2.68	2.87	3.87
Persons per family	3.35	3.28	3.39	3.46	3.56	3.47	-	-	2.94	2.48	3.69	4.23
Persons 65 years and over	143	469	208	186	72	105	-	-	212	503	637	518
In households	143	469	129	186	72	105	-	-	170	502	636	518
Householder	78	305	65	110	31	54	-	-	141	380	467	327
Nonfamily householder	31	142	25	43	5	13	-	-	123	203	233	116
Living alone	31	140	25	42	5	13	-	-	117	194	220	108
Spouse	26	97	30	38	14	29	-	-	16	55	104	109
Other relatives	39	65	29	35	26	22	-	-	4	46	49	77
Nonrelatives	-	2	5	3	1	-	-	-	9	21	16	5
Inmate of institution	-	-	74	-	-	-	-	-	14	-	-	-
Other, in group quarters	-	-		-	-	-	-	-	28	1	1	-
FAMILY TYPE BY PRESENCE OF OWN CHILDREN												
Families	2 150	2 526	1 274	2 321	1 408	1 190	-	-	154	798	1 184	1 773
With own children under 18 years	1 372	1 379	848	1 534	1 005	774	-	-	52	388	628	1 113
Number of own children under 18 years	2 452	2 653	1 543	2 862	1 875	1 493	-	-	123	818	1 500	2 756
Married-couple families	1 872	2 139	1 159	2 069	1 304	982	-	-	114	320	509	1 387
With own children under 18 years	1 182	1 133	770	[illegible]	929	617	-	-	34	130	197	896
Number of own children under 18 years	2 147	2 222	1 416	[illegible]	1 754	1 215	-	-	78	261	454	2 298
Female householder, no husband present	194	288	74	184	70	161	-	-	23	415	594	285
With own children under 18 years	152	201	56	144	57	128	-	-	13	238	404	189
Number of own children under 18 years	239	353	91	241	89	235	-	-	40	528	989	403
MARITAL STATUS												
Male, 15 years and over	2 845	3 563	1 597	2 925	1 [illegible]	1 610	-	-	1 501	1 072	1 568	2 952
Single	707	917	300	676	363	424	-	-	630	443	638	974
Now married, except separated	1 930	2 220	1 186	2 102	1 327	1 010	-	-	289	376	570	1 713
Separated	42	60	19	15	11	27	-	-	114	86	118	83
Widowed	20	85	17	17	9	10	-	-	97	76	107	62
Divorced	146	281	75	115	76	139	-	-	371	91	135	120
Female, 15 years and over	2 961	3 387	1 619	3 019	1 741	1 568	-	-	481	1 450	2 034	2 627
Single	590	472	205	543	256	278	-	-	106	459	619	588
Now married, except separated	1 922	2 226	1 179	2 111	1 338	1 018	-	-	177	353	554	1 527
Separated	42	85	31	47	22	44	-	-	51	143	223	104
Widowed	135	283	127	132	47	63	-	-	77	321	365	254
Divorced	272	321	77	186	78	165	-	-	70	174	263	154

ble P-1 General Characteristics of Persons: 1980—Con.

For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B

nsus Tracts

	Houston city (pt.), Harris County—Con.												
	Tract 202.99	Tract 203.01	Tract 203.02	Tract 203.03	Tract 204	Tract 205.01	Tract 205.02	Tract 205.03	Tract 206.01	Tract 206.02	Tract 207.01	Tract 207.02	Tract 207.03
I													
Total persons	42	3 779	5 853	2 463	3 111	4 020	5 757	2 431	3 512	3 524	2 689	2 753	2 622
r 5 years	-	44	[illegible]	31	[illegible]	402	32	[illegible]	33	[illegible]	41	31	37
9 years	-	79	35	68	59	36	14	87	91	6	63	18	200
o 14 years	-	58	63	25	49	37	09	8	25	53	36	31	158
o 19 years	-	75	86	35	74	93	53	54	76	85	44	51	290
o 24 years	2	22	73	23	36	347	33	20	28	45	71	33	226
o 34 years	4	81	70	46	420	84	849	92	497	442	21	68	360
o 44 years	-	47	14	19	91	332	34	14	20	14	55	44	211
o 54 years	-	41	38	92	64	388	87	58	35	28	48	61	320
o 64 years	-	32	84	63	01	403	78	71	84	02	35	01	274
o 74 years	-	222	00	5	97	335	77	05	03	72	06	29	63
ears and over	-	18	25	5	89	63	91	61	50	50	49	46	113
d 4 years	-	47	63	33	95	138	229	33	34	33	76	06	90
ears and over	42	2 567	753	612	2 310	2 861	4 092	820	2 537	2 462	838	762	892
ears and over	18	2 416	479	492	2 199	2 699	3 865	720	2 381	2 309	599	515	773
ears and over	25	184	344	341	2 058	2 458	3 532	583	2 140	2 078	492	429	611
ears and over	-	476	466	259	21	574	843	483	520	53	29	58	404
ears and over	-	404	89	23	73	593	719	425	445	34	00	13	340
an	21.6	25.7	22.1	23.3	32.0	27.6	27.3	29.9	27.3	25.8	23.6	22.1	28.0
Female	21	1 908	2 857	1 229	1 685	2 061	3 131	1 308	1 895	1 781	1 386	1 543	1 371
r 5 years	-	97	108	38	10	95	264	07	47	37	124	28	101
9 years	-	89	127	8	31	55	287	94	47	69	45	43	86
o 14 years	-	84	138	25	22	84	276	82	63	72	48	60	132
o 19 years	-	70	127	34	51	87	211	38	96	74	56	108	40
o 24 years	-	55	155	1	35	76	288	39	87	60	33	37	103
o 34 years	-	276	15	37	18	292	449	46	60	20	54	29	203
o 44 years	-	52	29	36	51	64	286	02	76	70	42	50	20
o 54 years	-	73	75	35	87	214	328	43	91	76	95	58	173
o 64 years	-	84	87	38	58	217	333	62	211	64	99	10	162
o 74 years	-	30	4	59	98	86	203	22	29	43	48	32	83
ears and over	-	78	72	48	124	91	106	03	38	56	22	28	58
d 4 years	-	71	126	47	50	66	113	47	56	47	48	51	43
ears and over	21	1 298	1 838	817	1 285	1 480	2 245	1 001	1 400	1 273	939	1 069	1 021
ears and over	19	1 232	1 697	761	1 229	1 399	2 118	942	1 321	1 188	869	977	971
ears and over	13	1 131	1 494	694	1 146	1 298	1 927	875	1 186	1 078	772	870	890
ears and over	2	281	261	156	403	376	475	293	307	289	117	159	217
ears and over	2	246	223	137	374	332	399	259	271	258	97	134	181
an	21.8	26.8	22.6	24.5	33.6	28.6	27.5	33.0	28.4	27.8	24.3	24.9	30.7
EHOLD TYPE AND RELATIONSHIP													
Total persons	42	3 779	5 853	2 463	3 111	4 020	5 757	2 431	3 512	3 524	2 689	2 753	2 622
households	-	3 770	5 852	2 463	3 105	4 013	5 757	2 429	3 410	3 524	2 689	2 753	2 542
ouseholder	-	1 147	1 466	690	1 226	1 440	2 081	939	1 201	1 093	783	790	785
Family householder	-	863	1 260	536	723	903	1 359	585	836	835	623	644	610
Nonfamily householder	-	284	206	154	503	537	722	354	365	258	160	146	175
Living alone	-	233	169	135	449	468	647	304	329	216	139	126	163
ouse	-	620	1 043	441	343	471	723	268	436	469	403	310	391
her relatives	-	1 866	3 226	1 278	1 400	1 915	2 740	1 123	1 659	1 821	1 445	1 596	1 325
nrelatives	-	137	117	54	136	187	213	99	114	141	58	57	41
e of institution	-	-	-	-	-	-	-	2	40	-	-	-	80
, in group quarters	42	9	1	-	6	7	-	-	62	-	-	-	-
ns per household	-	3.29	3.99	3.57	2.53	2.79	2.77	2.59	2.84	3.22	3.43	3.48	3.24
ns per family	-	3.88	4.39	4.21	3.41	3.64	3.55	3.38	3.51	3.74	3.97	3.96	3.81
Persons 65 years and over	-	340	305	191	406	498	568	366	353	422	155	175	276
households	-	340	305	191	486	497	568	365	317	422	155	175	208
ouseholder	-	233	206	131	359	349	402	295	230	288	111	114	152
Nonfamily householder	-	107	85	67	161	181	177	163	101	94	48	39	63
Living alone	-	101	80	64	151	164	165	148	92	90	46	33	62
ouse	-	57	53	33	83	63	98	40	43	87	24	31	33
er relatives	-	44	42	23	38	57	56	17	36	40	19	27	23
nrelatives	-	6	4	4	6	28	12	13	8	7	1	3	-
e of institution	-	-	-	-	-	-	-	1	31	-	-	-	68
, in group quarters	-	-	-	-	-	1	-	-	5	-	-	-	-
LY TYPE BY PRESENCE OF OWN CHILDREN													
Families	-	863	1 260	536	723	903	1 359	585	836	835	623	644	610
own children under 18 years	-	473	327	342	318	469	706	243	439	416	375	406	329
ber of own children under 18 years	-	1 183	2 109	846	689	1 026	1 509	501	932	958	838	957	669
Married-couple families	-	620	1 043	441	343	471	723	268	436	469	403	310	391
own children under 18 years	-	355	721	298	138	223	335	95	204	219	233	176	201
ber of own children under 18 years	-	879	1 857	742	308	493	672	193	422	497	538	406	425
Female householder, no husband present	-	192	152	66	330	352	552	264	341	290	178	306	188
own children under 18 years	-	110	83	35	166	220	336	130	211	173	125	223	119
ber of own children under 18 years	-	285	195	76	355	486	781	273	471	416	270	538	230
TAL STATUS													
Male, 15 years and over	21	1 300	1 986	831	1 080	1 418	1 898	850	1 175	1 225	930	731	905
	21	406	651	269	379	528	691	317	451	443	356	291	328
arried, except separated	-	740	1 182	484	397	546	783	295	486	537	429	339	440
ted	-	52	49	23	[illegible]	111	149	91	81	95	51	32	37
ed	-	29	36	20	[illegible]	106	126	74	65	70	34	21	38
d	-	73	68	35	120	127	149	73	92	90	60	48	62
Female, 15 years and over	21	1 338	1 884	848	1 322	1 527	2 384	1 025	1 438	1 303	969	1 112	1 082
	21	277	398	186	372	451	667	280	413	363	286	384	285
arried, except separated	-	681	1 143	472	379	512	772	285	486	510	425	327	428
ted	-	84	[illegible]	29	119	137	260	134	124	100	85	106	70
ed	-	184	175	103	313	270	346	232	252	213	88	130	155
d	-	112	101	58	139	157	259	94	163	117	85	155	114

able P-1 General Characteristics of Persons: 1980—Con.

For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B

Census Tracts

Houston city (pt.), Harris County—Con.

	Tract 207.04	Tract 208.01	Tract 208.02	Tract 208.03	Tract 209	Tract 210.01	Tract 210.02	Tract 211*	Tract 212*	Tract 213.01	Tract 213.02	Tract 214.01	Tract 214.02
GE													
Total persons	988	1 880	4 822	5 719	751	5 473	3 222	-	-	2 951	9 136	374	2 849
der 5 years	[illegible]	[illegible]	249	256	[illegible]	226	238	-	-	234	327	[illegible]	93
9 years	44	70	467	556	58	383	259	-	-	228	603	38	225
14 years	75	33	433	459	53	390	239	-	-	266	465	40	239
19 years	77	140	482	532	74	571	218	-	-	299	383	41	321
to 24 years	78	124	331	532	90	593	290	-	-	212	480	24	248
to 34 years	49	131	751	801	123	569	382	-	-	443	2 519	47	407
to 44 years	98	31	475	471	74	436	260	-	-	400	315	11	321
to 54 years	21	73	458	551	67	929	288	-	-	285	593	38	289
to 64 years	55	49	393	518	59	729	402	-	-	310	421	46	313
to 74 years	50	78	228	303	34	383	313	-	-	127	240	38	193
years and over	30	34	45	30	12	54	53	-	-	47	90	32	100
and 4 years	23	76	61	243	30	123	34	-	-	113	398	6	75
years and over	[illegible]	339	3 373	4 012	522	4 271	2 341	-	-	2 158	5 752	271	2 135
years and over	569	247	3 178	3 757	491	4 013	2 206	-	-	2 034	5 581	257	2 006
years and over	509	396	2 879	3 372	440	3 655	2 033	-	-	878	5 027	233	1 913
years and over	76	74	373	654	62	822	675	-	-	284	398	94	429
years and over	55	39	300	550	56	704	385	-	-	228	317	82	360
edian	27.1	24.4	25.4	25.1	24.4	32.5	28.9	-	-	30.3	25.7	29.4	29.9
Female	489	1 006	2 545	2 998	381	2 834	1 751	-	-	1 489	4 600	206	1 440
nder 5 years	44	38	226	277	47	161	127	-	-	105	304	12	100
o 9 years	45	38	227	282	32	179	138	-	-	116	411	8	118
to 14 years	39	77	213	246	30	198	146	-	-	123	332	9	132
to 19 years	[illegible]	72	231	190	31	253	61	-	-	139	322	25	156
to 24 years	47	20	234	121	54	296	44	-	-	76	337	11	128
to 34 years	74	67	401	436	61	292	219	-	-	226	86	29	94
to 44 years	46	34	252	287	37	250	55	-	-	205	246	5	157
to 54 years	51	34	269	267	42	309	71	-	-	198	315	27	150
to 64 years	45	31	207	277	23	360	238	-	-	55	209	29	153
to 74 years	27	44	143	154	19	217	169	-	-	74	145	17	103
years and over	[illegible]	21	92	61	5	109	83	-	-	32	143	14	49
and 4 years	15	34	87	118	17	63	48	-	-	56	198	4	39
years and over	348	730	1 833	2 132	265	2 252	1 304	-	-	1 118	3 410	154	1 057
8 years and over	331	685	1 739	2 022	257	2 150	1 237	-	-	1 060	3 323	143	993
1 years and over	297	611	1 582	1 846	232	1 965	1 151	-	-	980	3 004	129	899
0 years and over	57	100	330	339	29	470	382	-	-	158	370	47	218
2 years and over	48	83	290	282	28	408	328	-	-	134	330	41	193
edian	26.2	26.1	26.7	26.6	24.4	36.6	31.2	-	-	31.3	25.3	31.0	29.6
OUSEHOLD TYPE AND RELATIONSHIP													
Total persons	988	1 880	4 822	5 719	751	5 473	3 222	-	-	2 951	9 136	374	2 849
households	976	1 880	4 813	5 705	751	5 473	3 222	-	-	2 951	8 994	374	2 756
Householder	320	604	1 610	1 772	220	1 761	1 072	-	-	951	3 629	129	926
Family householder	225	464	1 201	1 428	189	1 373	803	-	-	805	2 404	87	662
Nonfamily householder	95	140	409	344	31	388	269	-	-	146	1 225	42	264
Living alone	83	114	365	306	28	366	247	-	-	138	1 042	39	242
Spouse	148	239	665	918	171	1 057	472	-	-	729	1 943	50	565
Other relatives	476	955	2 420	2 883	343	2 549	1 611	-	-	1 238	3 126	186	1 177
Nonrelatives	32	82	118	132	17	106	67	-	-	33	296	9	88
mate of institution	-	-	-	-	-	-	-	-	-	-	142	-	-
her, in group quarters	12	-	9	14	-	-	-	-	-	-	-	-	93
rsons per household	3.05	3.11	2.99	3.22	3.41	3.11	3.01	-	-	3.10	2.48	2.90	2.98
rsons per family	3.77	3.57	3.57	3.66	3.72	3.63	3.59	-	-	3.44	3.11	3.71	3.63
Persons 65 years and over	80	112	383	433	46	537	466	-	-	174	430	70	298
households	79	112	383	433	46	537	466	-	-	174	313	70	293
ouseholder	54	71	269	286	28	381	333	-	-	104	220	55	200
Nonfamily householder	21	23	100	88	9	180	113	-	-	40	126	23	90
Living alone	19	20	93	84	9	176	108	-	-	39	125	21	86
Spouse	14	22	74	81	11	93	85	-	-	39	49	7	51
Other relatives	9	[illegible]	36	55	7	59	39	-	-	30	40	8	34
Nonrelatives	2	3	4	11	-	4	9	-	-	1	4	-	8
mate of institution	-	-	-	-	-	-	-	-	-	-	117	-	-
her, in group quarters	1	-	-	-	-	-	-	-	-	-	-	-	-
MILY TYPE BY PRESENCE OF OWN CHILDREN													
Families	225	464	1 201	1 428	189	1 373	803	-	-	805	2 404	87	662
h own children under 18 years	127	274	656	784	112	576	344	-	-	430	1 402	39	343
umber of own children under 18 years	255	530	1 334	1 592	235	1 101	747	-	-	838	2 393	90	744
Married-couple families	148	239	665	918	171	1 057	472	-	-	729	1 943	50	565
h own children under 18 years	76	127	332	476	105	447	183	-	-	390	1 098	19	308
umber of own children under 18 years	161	232	682	960	218	879	394	-	-	772	1 922	41	675
Female householder, no husband present	62	196	445	427	13	247	277	-	-	54	345	31	56
own children under 18 years	45	134	289	280	7	108	147	-	-	30	258	16	25
umber of own children under 18 years	82	275	580	[illegible]	17	185	335	-	-	49	401	39	52
RITAL STATUS													
Male, 15 years and over	377	627	1 994	1 945	261	2 078	1 066	-	-	1 078	3 380	128	1 102
e	142	272	605	695	66	698	377	-	-	257	876	39	318
married, except separated	166	255	729	990	178	1 160	504	-	-	758	2 033	56	633
rated	22	37	69	92	2	71	62	-	-	9	103	3	25
wed	8	16	52	71	6	51	57	-	-	17	61	10	63
rced	39	44	139	97	9	98	66	-	-	37	315	12	63
Female, 15 years and over	361	753	1 879	2 193	272	2 286	1 340	-	-	1 145	3 453	157	1 090
l	108	256	528	604	56	561	347	-	-	188	627	42	272
married, except separated	158	255	723	961	176	1 117	500	-	-	755	2 026	52	600
ated	26	83	167	162	8	89	90	-	-	20	145	12	27
wed	31	74	243	253	17	327	246	-	-	96	307	30	119
ed	38	85	218	213	15	192	157	-	-	86	348	21	72

able P-1 General Characteristics of Persons: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

ensus Tracts

	Houston city (pt.), Harris County—Con.												
	Tract 249.03*	Tract 250*	Tract 251*	Tract 253*	Tract 254*	Tract 263*	Tract 264*	Tract 273.99	Tract 300.22	Tract 300.23	Tract 300.24	Tract 301.01	Tract 301.02
GE													
Total persons	358	226	2 565	182	-	-	-	80	3 962	1 472	3 242	4 972	6 154
der 5 years	[illegible]	[illegible]	129	[illegible]	-	-	-	[illegible]	446	[illegible]	[illegible]	[illegible]	574
o 9 years	[illegible]	[illegible]	127	[illegible]	-	-	-	[illegible]	403	8	59	6	590
to 14 years	[illegible]	[illegible]	138	[illegible]	-	-	-	-	480	28	122	463	524
to 19 years	[illegible]	9	129	[illegible]	-	-	-	3	391	45	193	483	559
to 24 years	[illegible]	3	16	[illegible]	-	-	-	5	173	10	123	187	518
to 34 years	51	10	454	19	-	-	-	[illegible]	319	211	591	315	1 010
to 44 years	[illegible]	22	406	4	-	-	-	[illegible]	362	35	140	471	510
to 54 years	41	34	171	21	-	-	-	3	312	32	157	422	516
to 64 years	42	18	18	15	-	-	-	[illegible]	228	33	182	107	390
to 74 years	22	25	17	3	-	-	-	[illegible]	46	16	101	123	245
years and over	3	0	40	2	-	-	-	-	102	9	106	41	118
nd 4 years	[illegible]	[illegible]	31	3	-	-	-	[illegible]	70	15	54	96	279
years and over	286	73	764	30	-	-	-	76	2 441	348	2 440	3 362	4 044
years and over	272	67	658	21	-	-	-	74	2 216	187	2 328	3 167	3 776
years and over	253	62	563	17	-	-	-	50	948	109	2 130	2 847	3 357
years and over	19	45	200	13	-	-	-	5	342	180	434	495	501
years and over	33	41	78	6	-	-	-	2	310	262	376	428	438
dian	22.3	18.7	23.9	18.4	-	-	-	25.5	20.6	18.3	18.7	23.9	23.5
Female	163	107	1 281	86	-	-	-	22	1 980	730	1 566	2 379	2 878
er 5 years	3	[illegible]	102	[illegible]	-	-	-	[illegible]	209	58	38	277	299
9 years	4	4	26	[illegible]	-	-	-	-	256	53	56	247	336
to 14 years	[illegible]	[illegible]	43	[illegible]	-	-	-	-	228	58	22	217	305
to 19 years	[illegible]	[illegible]	39	[illegible]	-	-	-	[illegible]	247	50	40	223	291
to 24 years	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	58	15	45	249	258
to 34 years	24	2	140	4	-	-	-	3	252	[illegible]	257	357	451
to 44 years	26	3	210	0	-	-	-	3	195	53	51	227	286
to 54 years	9	[illegible]	21	3	-	-	-	-	179	19	62	99	254
to 64 years	20	4	72	4	-	-	-	2	121	47	38	66	184
to 74 years	12	1	38	5	-	-	-	-	74	55	12	121	139
years and over	[illegible]	4	25	-	-	-	-	-	51	33	55	96	75
nd 4 years	1	3	48	3	-	-	-	1	80	24	46	100	113
years and over	131	83	892	67	-	-	-	21	1 239	517	1 141	1 584	1 883
years and over	125	82	836	63	-	-	-	20	1 128	481	1 097	1 491	1 767
years and over	117	80	791	61	-	-	-	14	997	444	1 000	1 367	1 580
years and over	19	21	111	12	-	-	-	1	174	167	231	296	282
years and over	16	19	97	9	-	-	-	1	159	160	207	256	251
dian	33.4	38.8	29.5	30.0	-	-	-	22.5	21.2	29.5	28.1	24.4	24.0
USEHOLD TYPE AND RELATIONSHIP													
Total persons	358	226	2 565	182	-	-	-	80	3 962	1 472	3 242	4 972	6 154
households	358	226	2 565	182	-	-	-	21	3 948	1 358	3 145	4 959	6 127
householder	149	86	797	59	-	-	-	3	996	403	1 245	1 430	1 679
Family householder	106	74	712	54	-	-	-	3	808	296	693	1 085	1 302
Nonfamily householder	43	12	85	5	-	-	-	-	188	107	552	345	377
Living alone	36	12	79	5	-	-	-	-	145	79	447	260	300
pouse	91	64	643	48	-	-	-	1	467	207	390	856	1 003
ther relatives	103	76	1 108	73	-	-	-	8	2 320	674	1 265	2 403	3 171
onrelatives	15	-	17	2	-	-	-	9	165	74	245	270	274
te of institution	-	-	-	-	-	-	-	-	-	103	49	-	-
r, in group quarters	-	-	-	-	-	-	-	59	14	11	48	13	27
ns per household	2.40	2.63	3.22	3.08	-	-	-	7.00	3.96	3.37	2.53	3.47	3.65
ns per family	2.83	[illegible]	3.46	3.24	-	-	-	4.00	4.45	3.98	3.39	4.00	4.21
Persons 65 years and over	26	35	137	11	-	-	-	1	248	235	307	364	363
households	26	35	137	11	-	-	-	1	248	136	305	363	360
householder	16	23	71	6	-	-	-	-	162	89	212	241	244
Nonfamily householder	5	7	24	-	-	-	-	-	61	26	124	113	115
Living alone	5	7	23	-	-	-	-	-	56	20	102	104	108
ouse	9	10	40	4	-	-	-	-	49	24	46	67	70
her relatives	1	2	24	1	-	-	-	1	22	19	26	43	41
nrelatives	-	-	2	-	-	-	-	-	15	4	21	12	5
e of institution	-	-	-	-	-	-	-	-	-	98	-	-	-
, in group quarters	-	-	-	-	-	-	-	-	-	1	2	1	3
ILY TYPE BY PRESENCE OF OWN CHILDREN													
Families	106	74	712	54	-	-	-	...	808	296	693	1 085	1 302
own children under 18 years	45	28	450	30	-	-	-	...	541	176	344	679	811
mber of own children under 18 years	71	46	853	56	-	-	-	4	1 504	411	713	1 595	2 113
Married-couple families	91	64	643	48	-	-	-	...	467	207	390	856	1 008
own children under 18 years	37	25	405	26	-	-	-	...	310	135	174	571	663
mber of own children under 18 years	59	43	785	50	-	-	-	4	874	326	361	1 362	1 750
Female householder, no husband present	12	6	53	5	-	-	-	...	285	59	239	150	198
own children under 18 years	6	2	36	4	-	-	-	...	213	29	146	80	121
mber of own children under 18 years	8	2	56	6	-	-	-	-	588	61	305	166	305
TAL STATUS													
Male, 15 years and over	160	94	911	67	-	-	-	55	1 246	540	1 323	1 811	2 228
	39	14	195	13	-	-	-	16	532	183	535	592	777
arried, except separated	92	59	665	49	-	-	-	31	548	251	443	1 043	1 225
ted	4	1	11	1	-	-	-	1	67	22	122	68	65
ed	2	2	9	-	-	-	-	-	45	34	70	37	56
d	23	8	31	4	-	-	-	7	54	50	153	71	105
Female, 15 years and over	133	86	910	67	-	-	-	21	1 287	531	1 170	1 638	1 938
	10	7	133	8	-	-	-	16	413	117	318	359	441
arried, except separated	92	67	656	48	-	-	-	1	528	236	422	935	1 101
ted	4	1	14	3	-	-	-	-	119	19	110	63	87
ed	8	9	58	6	-	-	-	-	128	117	194	186	183
d	19	2	49	2	-	-	-	4	99	42	126	95	126

Table P-… General Characteristics of Persons: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Census Tracts	Tract 302	Tract 303	Tract 304.01	Tract 304.02	Tract 305.01	Tract 305.02	Tract 306	Tract 307.01	Tract 307.02	Tract 308	Tract 309.01	Tract 309.02	Tract 309.03
	Houston city (pt.), Harris County—Con.												
AGE													
Total persons	6 654	2 127	4 642	5 206	4 250	4 251	5 119	5 780	4 900	7 431	6 049	3 086	3 110
…der 5 years	72	[illegible]	237	[illegible]	354	[illegible]	[illegible]	[illegible]	[illegible]	456	355	236	301
… 9 years	66	34	19	64	61	56	56	23	38	76	24	56	20
… 14 years	39	34	15	66	54	72	90	69	21	74	436	27	53
… 19 years	71	27	438	95	14	738	29	78	52	16	305	262	89
…to 24 years	314	95	391	17	63	761	504	39	77	2 002	549	511	307
…to 34 years	351	54	512	754	567	490	380	29	927	1 372	123	73	533
…to 44 years	543	99	405	483	378	305	543	506	422	536	544	265	270
…to 54 years	568	16	472	356	437	253	545	486	478	506	449	64	233
…to 64 years	431	93	434	499	400	298	491	397	487	389	475	75	330
…to 74 years	385	76	426	384	356	78	440	122	360	397	407	64	351
…years and over	184	92	293	261	246	27	208	52	267	237	282	93	223
…and 4 years	161	74	44	93	139	119	140	128	39	49	244	34	116
…years and over	4 760	510	3 385	3 639	3 098	3 122	3 747	4 096	3 308	5 299	4 343	2 486	2 399
…years and over	4 537	427	3 199	3 451	2 973	2 963	3 776	3 922	3 562	5 162	4 159	2 397	2 334
…years and over	4 139	293	2 938	3 182	2 779	2 134	3 541	3 633	3 424	4 980	3 800	2 144	2 197
…years and over	747	55	725	866	798	439	870	553	759	814	721	354	740
…years and over	574	217	332	767	704	274	589	373	767	752	335	308	587
…dian	26.0	27.3	29.8	27.8	30.1	21.0	30.4	26.3	29.6	24.1	26.8	25.7	31.5
Female	3 245	1 091	2 538	2 765	2 240	2 326	2 663	3 013	2 716	3 576	3 073	1 427	1 616
…der 5 years	120	99	79	255	57	58	69	286	73	233	235	141	154
… 9 years	280	31	218	215	38	76	93	262	54	76	288	92	105
…to 14 years	248	39	99	158	82	92	73	225	71	45	203	52	54
…to 19 years	293	4	94	150	56	158	221	259	92	202	148	73	95
…to 24 years	174	76	128	120	91	404	219	212	201	390	120	282	144
…to 34 years	179	27	234	402	150	286	430	156	305	494	101	279	249
…to 44 years	101	56	227	262	57	213	291	312	231	246	251	09	133
…to 54 years	247	7	236	242	231	54	291	268	200	273	244	78	128
…to 64 years	227	76	260	254	237	94	272	234	280	220	257	102	183
…to 74 years	177	97	271	228	208	10	267	80	212	229	244	96	214
…years and over	99	59	92	69	73	81	137	109	87	48	82	53	147
…and 4 years	136	32	71	92	61	56	72	128	65	78	119	47	63
…years and over	2 332	807	1 896	1 983	1 681	1 765	2 081	2 179	2 178	2 976	2 202	1 126	1 274
…years and over	2 210	761	1 814	1 886	1 624	1 694	1 994	2 092	2 108	2 904	2 112	1 070	1 245
…years and over	2 028	689	1 688	1 745	1 528	1 292	1 877	1 933	1 960	2 286	1 931	948	1 171
…years and over	471	198	595	515	496	281	538	404	539	481	552	213	464
…years and over	436	183	530	465	447	235	486	353	489	448	509	186	433
…dian	26.6	28.4	31.7	28.8	31.8	22.4	32.5	27.3	31.2	23.7	27.1	25.1	34.8
…USEHOLD TYPE AND RELATIONSHIP													
Total persons	6 654	2 127	4 642	5 206	4 250	4 251	5 119	5 780	4 900	7 431	6 049	3 086	3 110
…households	6 608	2 122	4 624	5 206	4 250	3 365	5 119	5 680	4 665	5 751	6 049	3 086	3 034
…ouseholder	2 243	791	1 852	1 941	1 758	1 289	2 076	2 053	1 781	2 381	2 112	1 315	1 199
Family householder	1 485	496	1 075	1 232	1 000	803	1 210	1 345	1 247	1 319	1 408	731	785
Nonfamily householder	758	295	777	709	758	486	866	708	534	1 062	704	584	414
Living alone	609	263	687	613	699	448	737	569	438	854	589	468	357
…pouse	1 134	245	419	567	442	244	650	640	733	974	1 120	551	651
…ther relatives	2 828	1 007	2 165	2 465	1 899	1 727	2 064	2 630	1 954	1 847	2 570	961	1 034
…onrelatives	403	79	188	233	151	105	329	357	197	549	247	259	150
…ate of institution	-	-	-	-	-	-	-	97	235	-	-	-	18
…r in group quarters	46	5	18	-	-	886	-	3	-	1 680	-	-	58
…ons per household	2.95	2.68	2.50	2.68	2.42	2.61	2.47	2.77	2.62	2.42	2.86	2.35	2.53
…ons per family	3.67	2.52	3.40	3.46	3.34	3.45	3.24	3.43	3.15	3.14	3.62	3.07	3.15
Persons 65 years and over	569	268	719	645	602	305	648	474	627	634	689	257	574
…useholds	569	267	719	645	602	305	548	407	426	633	689	257	541
…useholder	387	207	555	458	457	256	445	274	258	449	475	156	378
Nonfamily householder	218	134	348	231	253	161	211	104	83	251	247	59	172
Living alone	198	[illegible]	320	215	241	156	184	96	73	245	232	57	164
…ouse	90	33	67	107	79	28	108	65	92	128	127	66	130
…her relatives	73	20	75	63	56	21	70	59	65	49	77	29	30
…nrelatives	19	7	22	17	10	-	25	9	11	7	10	6	3
…e of institution	-	-	-	-	-	-	-	67	201	-	-	-	18
…r in group quarters	-	1	-	-	-	-	-	-	-	1	-	-	15
…LY TYPE BY PRESENCE OF OWN CHILDREN													
Families	1 485	496	1 075	1 232	1 000	803	1 210	1 345	1 247	1 319	1 408	731	785
…own children under 18 years	828	265	545	661	473	477	536	759	575	586	759	332	346
…mber of own children under 18 years	1 828	577	1 135	1 443	1 011	1 043	1 052	1 566	1 022	1 095	1 669	583	709
Married-couple families	1 134	245	419	567	442	244	650	640	733	974	1 120	551	651
…own children under 18 years	677	109	182	258	213	102	265	351	278	427	633	252	289
…mber of own children under 18 years	1 547	242	358	559	446	208	519	709	481	827	1 418	464	600
Female householder, no husband present	240	216	555	[illegible]	453	505	459	599	437	245	202	106	94
…own children under 18 years	128	140	311	[illegible]	240	357	248	381	348	140	107	63	42
…mber of own children under 18 years	244	303	717	[illegible]	523	790	496	813	499	243	213	99	81
…TAL STATUS													
Male, 15 years and over	2 470	748	1 529	1 712	1 448	1 400	1 912	1 969	1 662	3 353	2 187	1 375	1 143
…	870	274	630	627	563	912	738	845	550	1 940	676	541	305
…arried, except separated	1 312	268	480	605	494	290	725	721	795	1 083	1 247	636	707
…ted	57	66	142	179	118	76	148	147	92	99	54	69	29
…ed	57	57	116	103	113	48	82	62	65	45	59	16	39
…d	174	75	161	198	160	74	219	194	160	186	151	113	63
Female, 15 years and over	2 397	822	1 942	2 037	1 713	1 800	2 128	2 240	2 208	3 002	2 247	1 132	1 293
…	554	235	545	594	449	880	555	683	629	1 411	474	285	256
…arried, except separated	1 236	267	469	618	480	275	717	714	800	1 025	1 191	592	677
…ed	74	80	225	205	178	190	169	234	176	84	83	52	34
…d	329	151	465	365	387	231	342	290	334	267	303	108	227
…d	204	99	238	255	219	224	[illegible]	[illegible]	267	215	196	95	99

Table P-1. General Characteristics of Persons: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Census Tracts

Census Tracts	Tract 310	Tract 311	Tract 311.99	Tract 312	Tract 312.99	Tract 313.01	Tract 313.02	Tract 314.01	Tract 314.02	Tract 315	Tract 316.01	Tract 316.02	Tract 317.01
	Houston city (pt.), Harris County—Con.												
E													
Total persons	7 131	10 079	-	7 792	33	5 359	5 432	4 320	3 664	6 102	3 221	1 493	1 719
er 5 years	12	27	-	509	-	371	34	18	321	433	[illegible]	33	10
9 years	87	89	-	327	-	431	470	192	129	377	59	30	42
to 14 years	34	38	-	48	-	162	37	52	33	60	56	17	27
to 19 years	18	98	-	71	2	462	74	471	83	26	08	13	24
to 24 years	376	70	-	338	3	549	18	98	97	16	428	492	320
to 34 years	64	68	-	265	4	028	788	587	36	357	728	180	563
to 44 years	530	66	-	72	2	491	468	551	317	564	350	19	57
to 54 years	549	16	-	78	-	351	416	447	103	22	111	95	90
to 64 years	461	561	-	533	2	392	481	278	318	486	218	85	112
to 74 years	274	454	-	342	-	398	456	52	88	44	48	79	101
years and over	56	242	-	209	-	224	270	74	79	17	93	90	73
nd 4 years	209	468	-	337	-	204	213	171	68	71	73	6	26
years and over	4 837	5 657	-	5 272	33	3 931	3 922	2 959	2 651	4 633	2 546	409	1 538
years and over	4 554	5 212	-	4 951	29	3 746	3 781	2 773	2 547	4 413	2 572	385	1 529
years and over	4 036	1 590	-	4 461	8	3 421	3 515	2 504	2 332	4 089	2 422	111	1 498
years and over	525	775	-	787	2	825	795	331	432	350	331	227	233
years and over	553	340	-	581	2	749	391	278	366	762	294	209	199
ian	23.8	23.7	-	24.3	21.4	26.6	28.0	25.4	26.7	29.5	29.0	26.9	28.6
Female	3 362	4 880	-	3 647	17	2 684	2 828	2 246	1 739	3 249	1 456	668	742
r 5 years	197	384	-	373	-	284	246	211	208	305	34	0	43
9 years	330	341	-	385	-	211	236	75	53	340	73	9	22
14 years	124	495	-	178	-	89	209	215	76	133	37	7	15
19 years	153	30	-	157	5	224	75	244	79	153	30	26	11
24 years	183	04	-	348	5	212	262	215	77	314	200	348	146
34 years	100	76	-	547	2	453	478	274	34	142	167	88	270
44 years	299	442	-	351	2	231	241	207	32	155	134	54	61
54 years	294	464	-	308	-	173	213	231	64	199	44	45	43
64 years	209	309	-	293	2	224	201	145	162	253	101	53	55
74 years	159	260	-	183	-	230	274	81	106	215	83	64	45
ears and over	104	35	-	124	-	153	193	48	58	240	53	54	32
4 years	143	249	-	154	-	96	95	74	74	86	37	2	11
ears and over	2 243	3 144	-	2 442	17	1 968	2 116	1 593	1 261	2 520	1 168	830	663
ears and over	2 102	2 928	-	2 297	15	1 877	2 052	1 493	1 214	2 422	1 138	822	658
ears and over	1 863	2 648	-	2 074	9	1 715	1 921	1 356	1 104	2 252	1 067	764	643
ears and over	343	519	-	436	2	497	654	185	243	555	182	143	108
ears and over	309	454	-	377	2	452	573	158	215	508	169	133	87
an	23.5	23.5	-	24.7	21.5	27.4	30.5	26.4	27.3	31.4	28.9	25.6	28.4
SEHOLD TYPE AND RELATIONSHIP													
Total persons	7 131	10 079	-	7 792	33	5 359	5 432	4 320	3 664	6 102	3 221	1 498	1 779
useholds	7 125	10 065	-	7 780	-	5 258	5 432	4 320	3 650	5 818	2 998	639	1 611
useholder	2 057	2 718	-	2 152	-	1 894	1 847	1 376	1 314	2 111	1 414	389	898
amily householder	1 514	2 173	-	1 716	-	1 262	1 366	1 095	903	1 443	642	130	360
Nonfamily householder	543	545	-	436	-	632	481	281	411	668	772	259	538
Living alone	425	471	-	349	-	508	386	236	339	548	642	214	428
ouse	1 188	1 714	-	1 349	-	1 040	1 003	705	737	913	371	112	304
er relatives	3 511	5 318	-	3 919	-	2 090	2 265	2 120	1 440	2 541	970	59	263
nrelatives	369	315	-	360	-	234	317	119	159	253	243	79	146
e of institution	-	-	-	-	-	-	-	-	-	127	131	233	74
in group quarters	6	14	-	12	33	101	-	-	14	157	92	621	34
s per household	3.46	3.70	-	3.62	-	2.78	2.94	3.14	2.78	2.76	2.12	1.64	1.79
s per family	4.10	4.24	-	4.07	-	3.48	3.39	3.58	3.41	3.39	3.09	2.32	2.58
Persons 65 years and over	440	696	-	551	-	622	726	226	287	661	241	189	176
seholds	440	696	-	551	-	621	726	226	287	455	166	147	131
useholder	294	455	-	369	-	417	484	139	197	307	120	107	95
onfamily householder	148	188	-	136	-	207	204	49	93	161	71	62	55
Living alone	141	179	-	128	-	197	183	45	87	154	63	61	52
use	87	131	-	102	-	142	151	48	61	75	18	33	26
r relatives	50	96	-	71	-	49	73	35	27	65	21	3	9
relatives	9	14	-	9	-	13	18	4	2	8	7	4	1
of institution	-	-	-	-	-	-	-	-	-	115	75	26	43
in group quarters	-	-	-	-	-	1	-	-	-	91	-	16	-
Y TYPE BY PRESENCE OF OWN CHILDREN													
Families	1 514	2 173	-	1 716	-	1 262	1 366	1 095	903	1 443	642	130	360
h children under 18 years	969	1 375	-	1 036	-	650	679	667	479	757	314	22	128
ber of own children under 18 years	2 276	3 341	-	2 501	-	1 429	1 429	1 317	1 002	1 411	547	32	180
Married-couple families	1 188	1 714	-	1 349	-	1 040	1 003	705	737	913	371	112	304
n children under 18 years	800	1 161	-	901	-	549	522	426	402	443	173	17	112
ber of own children under 18 years	1 916	2 858	-	2 205	-	1 216	1 159	859	830	801	321	25	161
Female householder, no husband present	227	295	-	241	-	162	292	308	122	443	208	11	32
n children under 18 years	144	166	-	116	-	89	134	202	65	288	127	5	13
ber of own children under 18 years	302	360	-	262	-	184	236	394	167	564	208	7	16
AL STATUS													
Male, 15 years and over	2 667	3 615	-	2 897	16	1 995	1 854	1 413	1 409	2 161	1 492	581	877
	893	1 165	-	977	16	627	546	483	450	825	693	335	384
ried, except separated	1 515	2 025	-	1 699	-	1 150	1 097	738	811	1 011	467	154	389
d	94	154	-	53	-	41	50	65	38	101	102	23	20
	56	109	-	61	-	42	37	28	26	69	63	16	20
	109	162	-	107	-	135	124	99	84	155	167	53	64
Female, 15 years and over	2 311	3 263	-	2 511	17	2 000	2 137	1 645	1 282	2 571	1 192	832	663
	518	742	-	552	17	411	387	440	214	791	380	517	207
ried, except separated	1 313	1 885	-	1 467	-	1 106	1 070	740	782	988	399	170	334
	105	110	-	85	-	45	84	93	32	166	100	13	14
	241	340	-	274	-	276	388	119	141	354	156	70	41
	134	183	-	133	-	162	208	253	113	272	157	62	67

Table P-? General Characteristics of Persons: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Census Tracts	Houston city (pt.), Harris County—Con.												
	Tract 273.02	Tract 273.03	Tract 273.04	Tract 400.25	Tract 400.26	Tract 401.01	Tract 401.02	Tract 402.01	Tract 402.02	Tract 403	Tract 404.01	Tract 404.02	Tract 405.01
AGE													
Total persons	9 444	3 332		1 150	6 874	2 324	3 472	5 829	4 076	6 757	2 699	3 675	4 141
Under 5 years	59	[illegible]		[illegible]	12	[illegible]	[illegible]	[illegible]	3	45	7	6	221
5 to 9 years	52	4		9	56	[illegible]	34	40	3	54	46	35	321
10 to 14 years	33	45		43	77	2	8	3	37	36	9	31	301
15 to 19 years	25	37		43	48	5	15	57	59	74	32	60	214
20 to 24 years	19	50		30	45	97	99	31	75	80	481	470	547
25 to 34 years	507	23		237	393	46	343	268	494	563	542	1 126	1 221
35 to 44 years	829	94		01	514	62	67	43	449	59	547	494	428
45 to 54 years	292	14		07	387	299	219	431	215	307	86	302	288
55 to 64 years	485	22		38	561	281	203	409	254	429	55	307	312
65 to 74 years	14	17		20	464	37	69	430	91	286	15	220	330
75 years and over	9	5		16	287	74	24	232	31	204	3	214	328
3 and 4 years	211	63	...	24	276	6	76	63	60	45	21	35	721
16 years and over	7 008	3 306	...	952	4 531	2 181	2 811	5 376	3 659	6 409	2 536	3 266	3 635
18 years and over	5 558	2 752	...	940	4 239	2 126	2 722	5 282	3 575	6 347	2 506	3 209	3 569
21 years and over	5 986	2 562	...	903	3 840	2 079	2 542	5 344	3 335	5 766	2 387	3 089	3 369
60 years and over	390	75	...	292	1 015	334	381	757	445	664	292	571	800
62 years and over	299	74	...	265	898	278	335	386	390	590	260	515	741
Median	28.0	26.4	...	35.6	24.7	32.3	28.0	31.4	29.6	30.2	29.5	31.6	30.8
Female	4 597	1 556	...	472	3 591	1 139	1 545	2 635	1 631	2 620	1 181	1 786	1 883
Under 5 years	236	54	...	30	234	8	25	56	13	70	39	53	111
5 to 9 years	221	75	...	24	272	5	101	74	55	52	9	76	65
10 to 14 years	193	68	...	22	244	8	31	53	9	15	9	56	44
15 to 19 years	18	19	...	23	170	42	31	31	21	59	45	70	98
20 to 24 years	448	70	...	35	283	60	107	212	211	506	231	247	242
25 to 34 years	77	465	...	32	460	335	283	515	325	820	411	496	418
35 to 44 years	18	57	...	27	338	11	33	237	36	261	15	202	151
45 to 54 years	104	73	...	33	311	62	73	202	20	96	75	119	125
55 to 64 years	221	57	...	61	313	64	106	241	22	203	79	157	175
65 to 74 years	97	27	...	59	259	77	115	280	21	174	65	153	216
75 years and over	54	31	...	76	207	47	90	224	88	144	53	147	238
3 and 4 years	113	38	...	10	113	6	56	40	39	27	10	15	33
16 years and over	3 426	1 291	...	391	2 462	1 091	1 220	2 404	1 414	2 459	1 102	1 579	1 648
18 years and over	3 218	1 258	...	381	2 305	1 075	1 179	2 368	1 380	2 426	1 089	1 559	1 615
21 years and over	2 947	1 157	...	367	2 119	1 047	1 090	2 268	1 275	2 226	1 025	1 497	1 530
60 years and over	217	61	...	163	616	198	257	627	275	406	185	375	540
62 years and over	173	54	...	151	552	164	232	587	241	366	167	347	513
Median	28.9	25.8	...	41.3	26.8	33.9	28.2	32.3	29.4	29.8	29.3	31.9	33.4
HOUSEHOLD TYPE AND RELATIONSHIP													
Total persons	9 444	3 332	1	1 150	6 874	2 324	3 472	5 829	4 076	6 757	2 699	3 675	4 141
In households	9 444	3 332	...	1 005	6 734	2 052	3 464	5 819	4 028	6 547	2 699	3 584	4 141
Householder	3 469	1 827	...	513	2 231	1 406	1 489	3 457	2 170	4 130	1 684	1 983	2 343
Family householder	2 382	763	...	182	1 393	374	639	1 044	650	932	429	731	810
Nonfamily householder	1 087	1 064	...	331	838	1 032	850	2 413	1 520	3 198	1 255	1 252	1 533
Living alone	879	878	...	286	749	918	596	1 870	1 083	2 447	932	1 021	1 279
Spouse	2 125	577	...	138	627	305	456	769	440	692	307	593	607
Other relatives	3 554	684	...	280	3 580	211	1 078	868	761	678	296	657	787
Nonrelatives	296	244	...	74	296	130	441	725	657	1 047	412	351	404
Inmate of institution	-	-	...	110	138	272	-	-	-	2	-	-	-
Other, in group quarters	-	-	...	35	2	-	8	10	48	208	-	91	-
Persons per household	2.72	1.82	...	1.96	3.02	1.46	2.33	1.68	1.86	1.59	1.60	1.81	1.77
Persons per family	3.38	2.65	...	3.30	4.02	2.38	3.40	2.57	2.85	2.47	2.41	2.71	2.72
Persons 65 years and over	213	53	...	236	751	211	293	762	322	490	228	434	680
In households	213	53	...	145	733	210	293	762	320	486	228	434	658
Householder	117	36	...	108	580	158	212	569	235	346	166	306	504
Nonfamily householder	61	24	...	71	383	105	133	353	140	220	108	176	335
Living alone	59	24	...	69	356	103	123	335	127	204	102	164	326
Spouse	37	3	...	24	66	31	41	140	46	76	35	86	112
Other relatives	55	9	...	10	63	19	34	38	25	51	21	33	34
Nonrelatives	4	-	...	3	24	2	6	15	14	13	6	9	8
Inmate of institution	-	-	...	90	18	1	-	-	-	-	-	-	-
Other, in group quarters	-	-	...	1	-	-	-	-	2	4	-	-	-
FAMILY TYPE BY PRESENCE OF OWN CHILDREN													
Families	2 382	763	...	182	1 393	374	639	1 044	650	932	429	731	810
With own children under 18 years	1 489	359	...	72	857	54	317	324	233	227	125	245	288
Number of own children under 18 years	2 791	526	...	183	2 201	96	667	469	372	349	167	418	500
Married-couple families	2 125	577	...	138	627	305	456	769	440	692	307	593	607
With own children under 18 years	1 318	224	...	59	378	39	236	222	151	157	79	193	200
Number of own children under 18 years	2 525	331	...	152	1 062	72	527	335	258	253	111	343	354
Female householder, no husband present	187	130	...	29	648	48	120	189	134	153	83	95	141
With own children under 18 years	141	110	...	[illegible]	431	14	59	86	60	50	38	39	72
Number of own children under 18 years	219	158	...	16	1 037	23	102	117	101	85	48	58	122
MARITAL STATUS													
Male, 15 years and over	3 723	1 536	...	566	2 158	1 114	1 611	2 909	2 254	3 959	1 437	1 702	2 085
Single	1 243	619	...	237	875	580	780	1 653	1 299	2 512	834	813	957
Now married, except separated	2 175	604	...	181	755	326	568	851	513	782	347	631	676
Separated	56	58	...	30	204	38	56	89	76	88	42	33	66
Widowed	21	6	...	46	149	20	27	53	44	60	17	28	44
Divorced	228	247	...	72	175	150	180	343	322	517	197	197	262
Female, 15 years and over	3 547	1 309	...	396	2 541	1 098	1 228	2 412	1 424	2 463	1 106	1 591	1 663
Single	873	375	...	81	780	443	340	784	472	1 042	433	529	416
Now married, except separated	2 161	596	...	156	731	311	509	808	486	739	325	629	639
Separated	66	33	...	16	260	29	32	77	67	54	21	36	48
Widowed	140	46	...	96	525	94	171	332	165	228	117	184	326
Divorced	307	259	...	47	245	221	174	411	234	400	208	213	234

Table P-1. General Characteristics of Persons: 1980—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

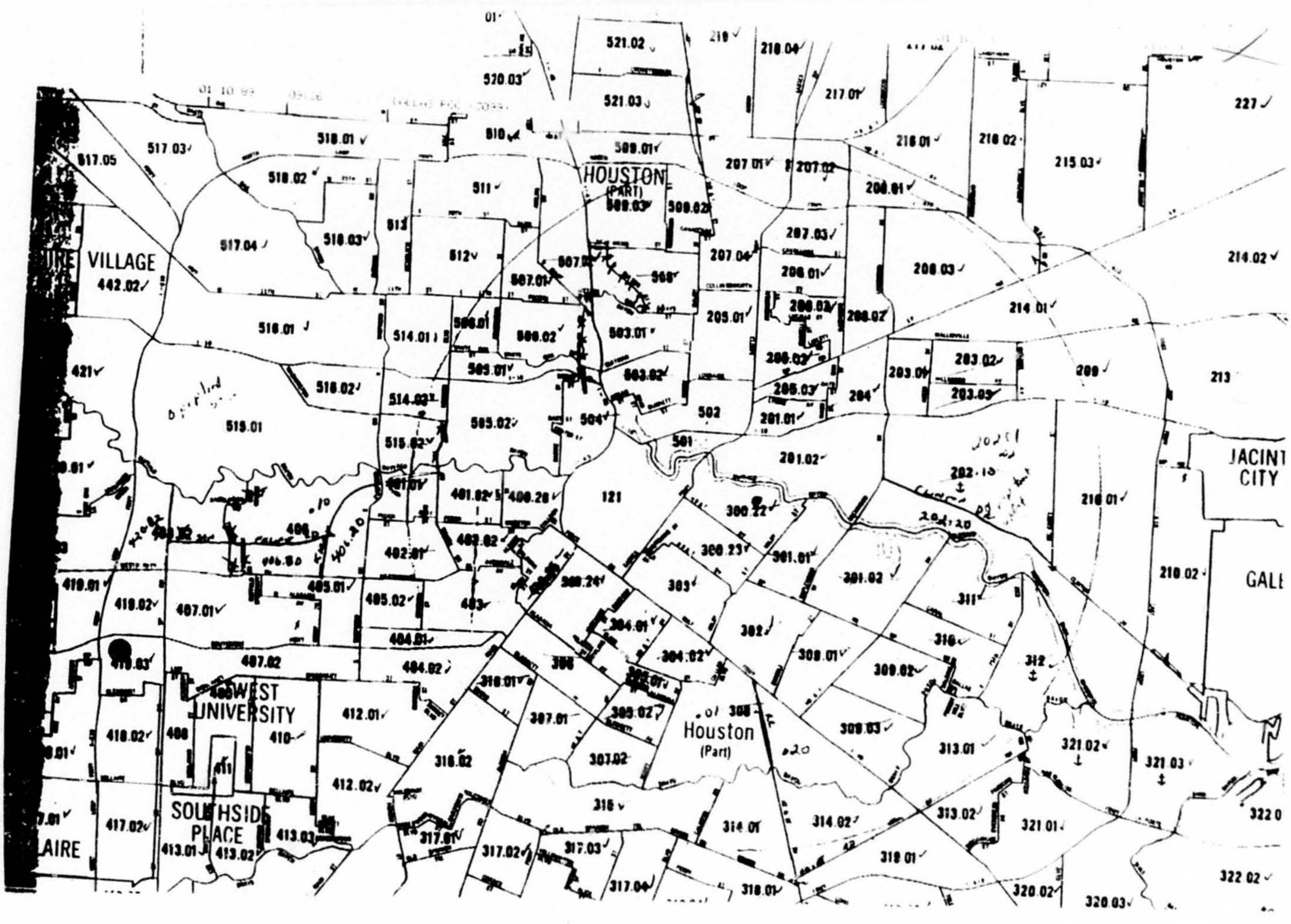
Houston city (pt.), Harris County—Con.

Census Tracts	Tract 0449	Tract 0450	Tract 0451.02	Tract 0501	Tract 0502	Tract 0503.01	Tract 0503.02	Tract 0504	Tract 0505.01	Tract 0505.02	Tract 0506.01	Tract 0506.02	Tract 0507.01
AGE													
Total persons	-	13	-	27	2 074	7 046	6 509	3 230	1 337	4 219	3 588	5 943	4 201
Under 5 years	-	...	-	-	206	76	349	23	79	56	22	275	326
5 to 9 years	-	...	-	-	227	19	53	42	16	77	54	272	300
10 to 14 years	-	...	-	-	220	75	88	30	19	44	17	292	315
15 to 19 years	-	...	-	-	202	39	18	83	16	49	73	411	278
20 to 24 years	-	...	-	-	71	74	13	59	53	48	88	49	341
25 to 34 years	-	...	-	-	249	20	12	22	52	05	35	454	831
35 to 44 years	-	...	-	3	59	22	29	97	22	31	53	63	394
45 to 54 years	-	...	-	5	98	48	45	77	38	19	45	457	359
55 to 64 years	-	...	-	1	79	42	02	80	90	57	46	450	365
65 to 74 years	-	...	-	6	64	357	05	65	79	83	45	443	383
75 years and over	-	...	-		79	54	75	02	13	50	70	457	309
3 and 4 years	-	...	-	-	76	290	241	38	42	44	18	29	114
16 years and over	-	...	-	26	371	4 728	4 489	2 234	030	061	340	4 810	3 202
18 years and over	-	...	-	26	306	4 436	4 211	2 120	991	889	742	4 670	3 089
21 years and over	-	...	-	24	182	3 974	3 743	924	919	599	501	4 371	2 915
60 years and over	-	...	-	3	335	369	593	404	74	503	337	118	882
62 years and over	-	...	-	3	292	751	594	344	62	521	468	010	821
Median	-	...	-	45.5	24.7	24.4	24.5	25.5	28.1	26.9	27.9	30.1	31.0
Female	-	...	-	15	1 071	3 528	3 071	1 484	660	1 943	1 771	3 035	2 173
Under 5 years	-	...	-		106	343	279	159	69	72	82	83	173
5 to 9 years	-	...	-	-	92	352	292	169	47	81	95	167	145
10 to 14 years	-	...	-	-	101	368	316	47	37	65	71	48	162
15 to 19 years	-	...	-		102	148	113	18	47	11	41	210	130
20 to 24 years	-	...	-	-	35	173	119	53	62	94	130	114	172
25 to 34 years	-	...	-		48	135	183	207	38	58	156	38	382
35 to 44 years	-	...	-	2	50	313	106	17	51	86	48	278	176
45 to 54 years	-	...	-	3	104	278	106	29	40	78	21	227	174
55 to 64 years	-	...	-	1	107	305	262	126	53	42	58	256	218
65 to 74 years	-	...	-	5	35	234	91	93	49	149	50	291	246
75 years and over	-	...	-	1	61	159	104	66	37	97	119	323	195
3 and 4 years	-	...	-	-	36	146	105	72	23	67	65	63	59
16 years and over	-	...	-	14	746	2 407	2 124	987	503	1 378	1 407	2 504	1 668
18 years and over	-	...	-	14	714	2 271	2 004	940	483	1 307	1 360	2 428	1 614
21 years and over	-	...	-	13	652	2 060	1 805	858	445	1 168	1 245	2 270	1 532
60 years and over	-	...	-	7	214	538	406	216	111	315	350	746	555
62 years and over	-	...	-	7	182	475	350	198	106	283	314	678	521
Median	-	...	-	54.8	27.7	25.8	25.3	24.8	27.6	26.7	28.7	31.9	32.6
HOUSEHOLD TYPE AND RELATIONSHIP													
Total persons	-	13	-	27	2 074	7 046	6 509	3 230	1 337	4 219	3 588	5 943	4 201
In households	-	...	-	27	2 055	7 018	6 427	3 051	1 337	4 007	3 588	5 858	4 193
Householder	-	...	-	9	697	2 060	1 703	905	502	1 220	1 508	2 557	1 650
Family householder	-	...	-	7	428	1 526	1 337	624	308	837	851	1 413	1 051
Nonfamily householder	-	...	-	2	269	534	366	281	194	383	657	1 144	599
Living alone	-	...	-	2	235	438	263	223	140	298	528	921	506
Spouse	-	...	-	1	183	1 065	963	409	240	548	635	1 107	841
Other relatives	-	...	-	17	1 074	3 582	3 334	1 544	483	1 982	1 176	1 820	1 535
Nonrelatives	-	...	-	-	101	311	427	193	112	257	269	374	167
Inmate of institution	-	...	-	-	-	-	51	179	-	-	-	62	-
Other, in group quarters	-	...	-	-	19	28	31	-	-	212	-	23	8
Persons per household	-	...	-	3.00	2.95	3.41	3.77	3.37	2.66	3.28	2.38	2.29	2.54
Persons per family	-	...	-	57	3.94	4.05	4.21	4.13	3.35	4.02	3.13	3.07	3.26
Persons 65 years and over	-	...	-	7	243	611	480	267	132	433	415	980	692
In households	-	...	-	7	235	611	463	266	132	410	415	853	692
Householder	-	...	-	5	174	433	303	195	89	290	306	629	490
Nonfamily householder	-	...	-	2	123	230	126	98	45	138	174	368	240
Living alone	-	...	-	2	112	220	109	90	41	127	166	350	234
Spouse	-	...	-	-	17	97	83	36	23	57	72	152	153
Other relatives	-	...	-	2	26	72	67	24	16	52	30	63	40
Nonrelatives	-	...	-	-	18	9	10	11	4	11	7	9	9
Inmate of institution	-	...	-	-	-	-	16	1	-	-	-	47	-
Other, in group quarters	-	...	-	-	8	-	1	-	-	23	-	-	-
FAMILY TYPE BY PRESENCE OF OWN CHILDREN													
Families	-	5	-	7	428	1 526	1 337	624	308	837	851	1 413	1 051
With own children under 18 years	-	2	-	-	243	933	790	368	146	435	389	593	470
Number of own children under 18 years	-	...	-	-	621	2 240	1 908	924	298	1 061	711	1 110	963
Married-couple families	-	3	-	1	183	1 065	963	409	240	548	635	1 107	841
With own children under 18 years	-	2	-	-	110	681	619	261	123	320	293	455	387
Number of own children under 18 years	-	...	-	-	265	1 739	1 546	684	253	793	545	872	810
Female householder, no husband present	-	-	-	5	215	358	267	153	49	215	154	232	137
With own children under 18 years	-	-	-	-	129	216	143	88	22	103	81	110	68
Number of own children under 18 years	-	...	-	-	348	441	306	205	43	244	138	199	124
MARITAL STATUS													
Male, 15 years and over	-	...	-	12	649	2 391	2 435	1 276	536	1 717	1 452	2 347	1 567
Single	-	...	-	8	273	876	959	460	182	601	487	817	448
Now married, except separated	-	...	-	3	223	1 248	1 217	553	284	707	733	1 198	919
Separated	-	...	-	-	52	62	106	93	9	139	46	54	40
Widowed	-	...	-	1	52	62	62	56	11	78	40	60	46
Divorced	-	...	-	-	49	143	91	111	53	192	146	218	114
Female, 15 years and over	-	...	-	14	772	2 665	2 184	1 009	507	1 425	1 423	2 537	1 693
Single	-	...	-	4	227	588	548	242	98	394	288	574	316
Now married, except separated	-	...	-	2	211	1 165	1 106	453	259	626	679	1 168	879
Separated	-	...	-	-	88	138	115	79	25	78	49	67	31
Widowed	-	...	-	6	179	334	278	155	78	207	209	439	320
Divorced	-	...	-	2	67	240	137	80	47	120	198	289	147

Table P-1 **General Characteristics of Persons: 1980**—Con.

[For meaning of symbols, see introduction. For definitions of terms, see appendixes A and B]

Census Tracts	Tract 0507.02	Tract 0508	Tract 0509.01	Tract 0509.02	Tract 0509.03	Tract 0510	Tract 0511	Tract 0512	Tract 0513	Tract 0514.01	Tract 0514.02	Tract 0515.01	Tract 0515.02
	Houston city (pt.), Harris County—Con.												
AGE													
Total persons	5 187	5 539	3 118	3 155	6 079	4 776	6 810	7 581	3 402	3 776	2 192	4 913	2 785
Under 5 years	[illegible]	58	19	[illegible]	790	405	70	08	65	60	58	355	[illegible]
5 to 9 years	413	34	77	256	439	404	23	462	26	81	90	328	[illegible]
10 to 14 years	79	477	20	77	406	88	450	13	12	80	34	273	[illegible]
15 to 19 years	433	35	37	54	12	435	28	6	27	86	18	323	34
20 to 24 years	42	16	99	241	307	455	21	06	409	460	68	573	416
25 to 34 years	481	743	52	447	783	603	273	535	77	586	40	940	341
35 to 44 years	489	487	81	279	530	352	577	586	95	50	87	502	280
45 to 54 years	481	498	71	310	575	447	498	86	243	01	91	419	238
55 to 64 years	502	11	34	280	705	518	518	521	278	297	83	475	90
65 to 74 years	343	287	207	215	541	474	509	549	268	277	56	491	102
75 years and over	250	63	[illegible]	09	291	295	243	579	222	98	69	234	12
3 and 4 years	75	216	01	33	81	158	207	230	14	31	61	104	71
16 years and over	3 834	583	272	273	4 670	3 500	197	6 001	569	800	573	3 909	2 271
18 years and over	3 666	643	173	115	4 467	3 313	4 972	808	479	698	486	3 787	2 198
21 years and over	3 371	3 256	993	923	4 138	3 043	4 590	425	199	471	339	3 539	2 075
60 years and over	825	538	484	444	305	022	262	542	527	525	298	976	421
62 years and over	742	564	429	400	175	910	142	419	369	562	262	872	211
Median	28.2	25.2	28.0	26.1	31.3	29.4	29.0	30.0	27.5	28.0	25.7	30.6	28.0
Female	2 556	2 494	1 567	1 562	3 176	2 540	3 361	3 944	1 721	1 887	1 104	2 414	1 261
Under 5 years	231	270	33	39	244	198	262	217	44	68	15	160	131
5 to 9 years	199	263	44	16	209	183	231	219	22	24	89	174	65
10 to 14 years	187	228	10	44	214	197	218	222	76	31	92	122	71
15 to 19 years	212	270	30	68	264	208	246	279	66	57	10	162	91
20 to 24 years	238	275	45	50	250	235	152	189	33	18	17	276	209
25 to 34 years	380	403	245	99	462	321	563	723	273	306	55	377	309
35 to 44 years	221	231	34	47	264	99	310	235	48	68	73	221	131
45 to 54 years	246	276	48	71	288	276	252	289	16	58	102	216	291
55 to 64 years	277	234	62	56	403	285	339	358	57	68	100	258	381
65 to 74 years	195	48	29	11	382	253	358	419	59	74	90	283	57
75 years and over	170	96	87	61	196	185	230	424	57	115	41	165	34
3 and 4 years	33	104	48	50	78	81	93	118	64	65	30	46	37
16 years and over	1 895	1 883	1 149	1 131	2 469	1 921	2 608	3 134	1 336	1 430	791	1 933	1 006
18 years and over	1 817	1 763	1 107	1 060	2 367	1 835	2 495	3 031	1 295	1 377	742	1 874	965
21 years and over	1 677	1 602	1 021	966	2 198	1 707	2 335	2 846	1 144	1 261	670	1 748	906
60 years and over	504	348	288	247	800	577	755	1 036	401	380	169	591	136
62 years and over	460	307	259	220	721	512	693	958	367	341	152	533	123
Median	29.5	25.9	29.0	27.9	33.3	32.3	30.3	31.8	29.4	29.3	26.5	32.6	27.2
HOUSEHOLD TYPE AND RELATIONSHIP													
Total persons	5 187	5 539	3 118	3 155	6 079	4 776	6 810	7 581	3 402	3 776	2 192	4 913	2 785
In households	5 187	5 536	3 118	3 155	6 079	4 776	6 810	7 581	3 008	3 776	2 192	4 858	2 756
Householder	1 848	1 684	1 072	969	2 181	1 722	2 512	3 351	1 083	1 384	739	2 072	1 358
Family householder	1 210	1 306	785	737	1 633	1 142	1 706	1 748	734	889	498	1 173	513
Nonfamily householder	638	378	287	232	548	580	806	1 603	349	495	241	899	845
Living alone	505	324	252	200	489	535	650	1 354	292	411	196	739	705
Spouse	967	948	632	489	1 360	628	1 347	1 378	578	638	303	898	402
Other relatives	2 069	2 695	1 331	1 611	2 393	2 293	2 613	2 383	1 221	1 557	1 018	1 604	779
Nonrelatives	303	209	83	86	145	133	338	469	126	197	132	284	217
Inmate of institution	-	-	-	-	-	-	-	-	115	-	-	45	22
Other, in group quarters	-	3	-	-	-	-	-	-	279	-	-	10	7
Persons per household	2.81	3.29	2.91	[illegible]	2.79	2.77	2.71	2.26	2.78	2.73	2.97	2.34	2.08
Persons per family	3.51	3.79	3.50	3.85	3.30	3.56	3.32	3.15	3.45	3.47	3.65	3.13	3.38
Persons 65 years and over	593	450	358	334	932	769	952	1 228	490	475	225	725	158
In households	593	450	358	324	932	769	952	1 228	393	475	225	724	150
Householder	417	310	248	216	600	556	663	948	287	333	164	493	110
Nonfamily householder	213	120	115	71	245	245	304	635	151	164	69	223	59
Living alone	203	115	112	67	237	231	292	608	140	154	67	206	57
Spouse	113	85	72	69	238	132	200	187	69	94	37	166	27
Other relatives	51	49	35	34	85	67	71	68	28	31	21	57	11
Nonrelatives	12	a	3	5	9	14	18	25	9	17	3	8	2
Inmate of institution	-	-	-	-	-	-	-	-	97	-	-	1	5
Other, in group quarters	-	-	-	-	-	-	-	-	-	-	-	-	-
FAMILY TYPE BY PRESENCE OF OWN CHILDREN													
Families	1 210	1 306	785	737	1 633	1 142	1 706	1 748	734	889	498	1 173	513
With own children under 18 years	591	746	400	368	715	498	792	771	344	422	254	451	231
Number of own children under 18 years	1 326	1 654	829	804	1 430	1 070	1 595	1 526	795	932	527	967	516
Married-couple families	967	948	632	489	1 360	628	1 347	1 378	578	638	303	898	402
With own children under 18 years	481	566	338	255	610	255	639	615	280	312	151	348	185
Number of own children under 18 years	1 082	1 284	703	566	1 269	541	1 318	1 249	668	716	333	770	426
Female householder, no husband present	182	262	111	197	208	431	261	274	117	196	152	196	72
With own children under 18 years	95	150	50	104	87	216	127	131	54	93	95	88	32
Number of own children under 18 years	217	317	102	226	137	477	236	236	108	187	183	176	70
MARITAL STATUS													
Male, 15 years and over	1 982	2 057	1 152	1 182	2 235	1 617	2 637	2 912	1 260	1 391	804	1 999	1 284
Single	650	750	325	469	568	576	819	957	459	472	287	662	566
Now married, except separated	1 104	1 090	692	540	1 437	685	1 486	1 506	626	697	377	1 019	456
Separated	50	71	30	59	43	107	92	83	33	56	40	66	62
Widowed	47	60	32	40	42	104	65	97	60	45	32	47	21
Divorced	131	86	73	74	145	145	175	269	82	121	68	204	179
Female, 15 years and over	1 939	1 933	1 180	1 163	2 309	1 962	2 650	3 186	1 359	1 464	808	1 958	1 080
Single	346	429	207	314	455	492	470	640	336	326	202	439	307
Now married, except separated	1 027	1 022	666	535	1 420	678	1 432	1 463	630	685	338	947	424
Separated	80	101	28	76	64	167	76	97	35	91	60	53	43
Widowed	285	241	183	149	398	395	430	668	250	207	123	313	96
Divorced	201	140	96	89	172	230	242	318	108	155	85	206	150


HOUSTON
(PART)
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UNIVERSITY
SOUTHSIDE
PLACE
Houston
(Part)
JACINT
CITY
GALE
LAIRE

RECORD OF COMMUNICATION	(Record of Item Checked Below) _X_ Phone Call ___ Discussion ___ Field Trip ___ Conference ___ Other(Specify)	
TO: Dr. Herbert McKee Occupational Health City of Houston Health Dept/Engineering (713) 640-4399	From: Kelly Bowles, FIT Geologist Kelly Bowles	Date: 1/9/89 Time: 2:25 pm

SUBJECT: Lead Products Facility Site and Buffalo Bayou/Houston Ship Channel

SUMMARY OF COMMUNICATION

Q: Has there been any remedial action taken at Lead Products facility site?

A: There hasn't been any complete remedial action. The company itself is making an attempt to control runoff. There hasn't been any removal. We are trying to get approval to implement a program to recover the lead from the contaminated soil.

Q: Do you have an estimate of the amount of hazardous material buried onsite?

A: We have no record of the amount. We have data showing the levels of contamination, but no quantity data.

Q: Surface runoff from Lead Products feeds into Buffalo Bayou. Do you know what Buffalo Bayou is used for down stream from the site?

A: Buffalo Bayou is used for navigation and by industries along the channel for once through cooling water. There is no consumptive use and it is not used for drinking water.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

0458

REFERENCE 11

RECORD OF COMMUNICATION	(Record of Item Checked Below) X Phone Call ___Discussion ___Field Trip ___Conference ___Other(Specify)	
TO: Julie Massey, Ecological Services U.S. Fish & Wildlife Service.	From: Kelly Bowles, FIT Geologist Kelly Bowles	Date: 1/9/89 Time: 2:10 pm

SUBJECT: Sensitive Environments along Buffalo Bayou

SUMMARY OF COMMUNICATION

Q: Are there any critical habitats of Endangered Species or other sensitive environments along Buffalo Bayou in the City of Houston?

A: No. There are no federally designated critical habaitats for endangered species along Buffalo Bayou. The edges of the bayou are fairly industrialized, so there are no federally designated sensitive environments along the banks.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

0454

ECOLOGY+ENVIRONMENT, INC.

CHARACTERISTICS OF THE POPULATION

Number of Inhabitants

TEXAS

REFERENCE 12

1980 Census of Population

U.S. Department of Commerce
BUREAU OF THE CENSUS

1980 Census of Population

VOLUME 1
CHARACTERISTICS OF THE POPULATION

CHAPTER A

Number of Inhabitants

PART 45

TEXAS

PC80-1-A45

Issued March 1982

U.S. Department of Commerce
Malcolm Baldrige, Secretary
Joseph R. Wright, Jr.,
Deputy Secretary
Robert G. Dederick,
Assistant Secretary for
Economic Affairs

BUREAU OF THE CENSUS
Bruce Chapman,
Director

Data Index

This index provides a summary listing of the tables in which the particular data are presented. For a listing of the individual tables and their page numbers, see page 1.

Table 2. Land Area and Population: 1930 to 1980

[Counts relate to counties as defined at each census. For meaning of symbols, see introduction]

Counties	1980 land area: Square miles	1980 land area: Square kilometers	Population 1980: Number	1980: Per square mile	1980: Per square kilometer	Percent change 1970 to 1980	Percent change 1960 to 1970	1970	1960	1950	1940	1930
e State	262 017	678 623	14 229 191	54.3	21.0	27.1	16.9	11 198 655	9 579 677	7 711 194	6 414 824	5 824 715
erson	1 077	2 789	38 381	35.6	13.8	38.1	-1.3	27 789	28 162	31 875	37 092	34 643
rews	1 501	3 888	13 323	8.9	3.4	28.5	-22.9	10 372	13 450	5 002	1 277	736
elina	807	2 089	64 172	79.5	30.7	30.0	23.9	49 349	39 814	36 032	32 201	27 803
sas	280	726	14 260	50.9	19.6	60.2	27.1	8 902	7 006	4 252	3 469	2 219
er	907	2 350	7 266	8.0	3.1	26.2	-5.7	5 759	6 110	6 816	7 599	9 684
strong	910	2 356	1 994	2.2	0.8	5.2	-3.6	1 895	1 966	2 215	2 495	3 329
scosa	1 213	3 154	25 055	20.6	7.9	34.0	-0.7	18 696	18 828	20 048	19 275	15 654
n	656	1 698	17 726	27.0	10.4	28.2	0.4	13 831	13 777	14 663	17 384	18 860
y	827	2 141	8 168	9.9	3.8	-3.8	-6.6	8 487	9 090	7 592	6 318	5 186
dera	793	2 053	7 084	8.9	3.5	49.2	22.0	4 747	3 892	4 410	4 234	3 784
trop	895	2 318	24 726	27.6	10.7	42.9	2.2	17 297	16 925	19 622	21 610	23 888
or	862	2 233	4 919	5.7	2.2	-5.8	-11.4	5 221	5 893	6 875	7 755	7 418
	880	2 280	26 030	29.6	11.4	14.5	-4.3	22 737	23 755	18 174	16 481	15 721
	1 055	2 732	157 889	149.7	57.8	26.8	32.3	124 483	94 097	73 824	44 863	50 030
r	1 248	3 232	988 800	792.3	305.9	19.1	20.9	830 460	687 151	500 460	338 176	292 533
co	714	1 848	4 681	6.6	2.5	31.2	-2.5	3 567	3 657	3 780	4 264	3 842
en	900	2 330	859	1.0	0.4	-3.3	-17.5	888	1 076	1 106	1 396	1 505
que	989	2 561	13 401	13.6	5.2	22.2	1.5	10 966	10 809	11 836	15 761	15 750
ie	891	2 307	75 301	84.5	32.6	9.3	14.9	68 909	59 971	61 966	50 208	48 563
oria	1 407	3 644	169 587	120.5	46.5	56.6	42.1	108 312	76 204	46 549	27 069	23 054
os	588	1 524	93 588	159.2	61.4	61.4	29.1	57 978	44 895	38 390	26 977	21 835
ster	6 169	15 977	7 573	1.2	0.5	-2.7	20.9	7 780	6 434	7 309	6 478	6 624
oe	887	2 298	2 579	2.9	1.1	-7.7	-21.9	2 794	3 577	3 528	4 056	5 590
ks	942	2 439	8 428	8.9	3.5	5.3	-7.0	8 005	8 609	9 195	6 362	5 901
n	936	2 424	33 057	35.3	13.6	27.7	4.6	25 877	24 728	28 607	25 924	26 382
son	668	1 731	12 313	18.4	7.1	23.1	-10.5	9 999	11 177	13 000	18 334	19 848
et	994	2 575	17 803	17.9	6.9	55.9	23.3	11 420	9 265	10 356	10 771	10 355
well	546	1 413	23 637	43.3	16.7	11.6	23.0	21 178	17 222	19 350	24 893	31 397
oun	540	1 399	19 574	36.2	14.0	9.8	7.5	17 831	16 592	9 222	5 911	5 385
han	899	2 329	10 992	12.2	4.7	34.0	3.5	8 205	7 929	9 087	11 568	12 785
eron	905	2 345	209 727	231.7	89.4	49.4	-7.1	140 368	151 098	125 170	83 202	77 540
p	203	525	9 275	45.7	17.7	15.9	2.0	8 005	7 849	8 740	10 285	10 063
on	924	2 392	6 672	7.2	2.8	4.9	-18.3	6 358	7 781	6 852	6 624	7 745
	937	2 426	29 430	31.4	12.1	21.9	2.7	24 133	23 496	26 732	33 496	30 030
ro	899	2 329	10 556	11.7	4.5	1.6	16.5	10 394	8 923	5 417	4 631	4 720
mbers	616	1 596	18 538	30.1	11.6	52.1	17.4	12 187	10 379	7 871	7 511	5 710
okee	1 052	2 725	38 127	36.2	14.0	19.1	-3.4	32 008	33 120	38 694	43 970	43 180
ress	707	1 831	6 950	9.8	3.8	5.2	-21.6	6 605	8 421	12 123	12 149	16 044
	1 085	2 811	9 582	8.8	3.4	18.6	-3.3	8 079	8 351	9 896	12 524	14 545
ran	775	2 006	4 825	6.2	2.4	-9.4	-17.0	5 326	6 417	5 928	3 735	1 963
	908	2 352	3 196	3.5	1.4	3.5	-14.0	3 087	3 589	4 045	4 590	5 253
man	1 277	3 308	10 439	8.2	3.2	1.5	-17.4	10 288	12 458	15 503	20 571	23 669
	851	2 205	144 576	169.9	65.6	116.0	62.2	66 920	41 247	41 692	47 190	46 180
ngsworth	909	2 354	4 648	5.1	2.0	-2.3	-24.2	4 755	6 276	9 139	10 331	14 461
rado	964	2 498	18 823	19.5	7.5	6.7	-4.5	17 638	18 463	17 576	17 812	19 129
l	555	1 438	36 446	65.7	25.3	50.8	21.8	24 165	19 844	16 357	12 321	11 984
nche	930	2 409	12 617	13.6	5.2	6.0	0.3	11 898	11 865	15 516	19 245	18 430
ho	992	2 570	2 915	2.9	1.1	-0.7	-20.0	2 937	3 672	5 078	6 192	7 645
e	893	2 312	27 656	31.0	12.0	17.8	4.0	23 471	22 560	22 146	24 909	24 136
ell	1 057	2 737	56 767	53.7	20.7	60.8	47.4	35 311	23 961	16 284	20 226	19 999
	895	2 319	2 947	3.3	1.3	-8.0	-23.8	3 204	4 207	6 099	7 079	9 395
	782	2 026	4 600	5.9	2.3	10.3	-11.2	4 172	4 699	3 965	2 841	2 221
ett	2 806	7 268	4 608	1.6	0.6	18.6	-7.7	3 885	4 209	3 981	2 809	2 590
y	898	2 327	8 859	9.9	3.8	-2.5	-12.2	9 085	10 347	9 582	10 046	11 023
rson	3 815	9 880	3 315	0.9	0.3	-3.3	22.7	3 429	2 794	1 825	1 653	1 228
n	1 505	3 899	6 531	4.3	1.7	8.6	-4.6	6 012	6 302	7 640	6 494	7 830
	880	2 279	1 556 390	1768.6	682.9	17.2	39.5	1 327 695	951 527	614 799	398 564	325 691
on	903	2 338	16 184	17.9	6.9	-2.5	-13.5	16 604	19 185	19 113	15 367	13 573
Smith	1 497	3 878	21 165	14.1	5.5	11.4	44.1	18 999	13 187	9 111	6 056	5 979
	278	720	4 839	17.4	6.7	-1.8	-15.9	4 927	5 860	8 964	12 858	13 138
n	911	2 359	143 126	157.1	60.7	89.2	59.5	75 633	47 432	41 365	33 658	32 822
itt	910	2 358	18 903	20.8	8.0	1.3	-9.8	18 660	20 683	22 973	24 935	27 441
s	907	2 348	3 539	3.9	1.5	-5.3	-24.7	3 737	4 963	7 177	7 847	8 601
	1 307	3 386	11 367	8.7	3.4	25.8	-10.5	9 039	10 095	10 654	8 542	8 828
	929	2 406	4 075	4.4	1.7	11.9	-18.2	3 641	4 449	6 216	7 487	10 262
	1 795	4 649	12 517	7.0	2.7	6.8	-12.5	11 722	13 398	15 643	20 565	12 191
nd	924	2 394	19 480	21.1	8.1	7.7	-7.3	18 092	19 526	23 942	30 345	34 156
	903	2 340	115 374	127.8	49.3	24.5	1.8	92 660	90 995	42 102	15 051	3 958
s	2 120	5 492	2 033	1.0	0.4	-3.5	-9.1	2 107	2 317	2 908	2 933	2 764
	939	2 432	59 743	63.6	24.6	28.1	7.5	46 638	43 395	45 645	47 733	53 936
	1 014	2 626	479 899	473.3	182.7	33.6	14.4	359 291	314 070	194 968	131 067	131 597
	1 080	2 796	22 560	20.9	8.1	24.4	11.7	18 141	16 236	18 434	20 760	20 804
	770	1 995	17 946	23.3	9.0	3.7	-18.6	17 300	21 263	26 724	35 984	38 771
	895	2 318	24 285	27.1	10.5	7.0	-4.9	22 705	23 880	31 253	41 064	41 163
	950	2 460	18 832	19.8	7.7	6.7	-13.4	17 650	20 384	24 176	29 246	30 708
	897	2 322	5 891	6.6	2.5	-7.1	-19.3	6 344	7 865	11 023	12 932	13 563
	992	2 570	9 834	9.9	3.8	-11.0	-10.7	11 044	12 369	10 535	10 659	12 409
	703	1 821	2 158	3.1	1.2	-2.4	-29.2	2 211	3 125	4 216	5 237	6 315
nd	876	2 268	130 846	149.4	57.7	150.1	29.1	52 314	40 527	31 056	32 963	29 718
	294	762	6 893	23.4	9.0	30.3	3.7	5 291	5 101	6 257	8 378	8 494
ne	888	2 300	14 830	16.7	6.4	33.4	-11.2	11 116	12 525	15 696	21 138	22 589
	1 133	2 934	13 785	12.2	4.7	23.5	10.4	11 159	10 112	10 357	9 207	9 411
	1 504	3 895	13 150	8.7	3.4	13.4	-5.5	11 593	12 267	8 909	8 136	2 800
on	399	1 033	195 940	491.1	189.7	15.4	21.0	169 812	140 364	113 066	81 173	64 401
	895	2 317	5 336	6.0	2.3	0.9	-20.0	5 289	6 611	6 281	5 678	5 586
	1 061	2 749	13 532	12.8	4.9	28.2	5.0	10 553	10 048	10 520	10 670	11 020
k	900	2 332	1 304	1.4	0.6	12.9	3.3	1 155	1 118	1 089	1 193	1 263
	859	2 224	5 193	6.0	2.3	6.7	-10.3	4 869	5 429	6 219	8 798	10 093
s	1 068	2 765	16 883	15.8	6.1	3.1	-8.2	16 375	17 845	21 164	26 075	28 337
	921	2 385	26 386	28.6	11.1	-2.1	-14.5	26 949	31 535	24 728	23 911	22 090
	934	2 419	89 796	96.1	37.1	7.7	13.9	83 225	73 043	70 467	69 499	65 843

Table 2. Land Area and Population: 1930 to 1980—Con.

(Counts relate to counties as defined at each census. For meaning of symbols, see introduction.)

Counties	1980 land area: Square miles	1980 land area: Square kilometers	Population 1980: Number	1980: Per square mile	1980: Per square kilometer	Percent change 1970 to 1980	Percent change 1960 to 1970	1970	1960	1950	1940	1930
Gregg	[illegible]	[illegible]	99 487	364.4	[illegible]	[illegible]	9.4	75 929	69 436	61 258	58 027	15 778
Grimes	[illegible]	[illegible]	13 580	[illegible]	[illegible]	[illegible]	[illegible]	11 855	12 709	15 135	21 960	22 642
Guadalupe	[illegible]	[illegible]	46 708	[illegible]	[illegible]	[illegible]	[illegible]	33 554	29 017	25 392	25 596	28 925
Hale	1 005	2 604	37 592	[illegible]	[illegible]	[illegible]	[illegible]	34 137	36 798	28 211	18 813	20 189
Hall	876	2 270	5 594	[illegible]	[illegible]	[illegible]	[illegible]	6 015	7 322	10 930	12 117	16 966
Hamilton	836	2 165	8 297	[illegible]	[illegible]	[illegible]	[illegible]	7 198	8 488	10 660	13 303	13 523
Hansford	921	2 385	6 209	[illegible]	[illegible]	[illegible]	[illegible]	6 351	6 208	4 202	3 783	3 548
Hardeman	668	1 732	6 368	[illegible]	[illegible]	[illegible]	[illegible]	6 795	8 275	10 212	11 073	14 532
Hardin	898	2 326	40 721	45.3	17.5	35.8	21.8	29 996	24 629	19 535	15 875	13 936
Harris	1 734	4 492	2 409 547	1 389.6	536.4	38.3	40.1	1 741 912	1 243 158	806 701	528 961	359 328
Harrison	908	2 353	52 265	57.6	22.2	16.6	-1.7	44 841	45 594	47 745	50 900	48 937
Hartley	1 462	3 786	3 987	2.7	1.1	43.3	28.1	2 782	2 171	1 913	1 873	2 185
Haskell	901	2 333	7 725	8.6	3.3	-9.2	-23.8	8 512	11 174	13 736	14 905	16 669
Hays	678	1 757	40 594	59.9	23.1	46.9	38.7	27 642	19 934	17 840	15 349	14 915
Hemphill	903	2 338	5 304	5.9	2.3	72.0	-3.2	3 084	3 185	4 123	4 170	4 637
Henderson	888	2 301	42 606	48.0	18.5	61.0	21.5	26 466	21 786	23 405	31 822	30 583
Hidalgo	1 569	4 064	283 229	180.5	69.7	56.0	0.3	181 535	180 904	160 446	106 059	77 004
Hill	968	2 508	25 024	25.9	10.0	10.7	-4.5	22 596	23 650	31 282	38 355	43 036
Hockley	908	2 351	23 230	25.6	9.9	13.9	-8.7	20 396	22 340	20 407	12 693	9 298
Hood	425	1 101	17 714	41.7	16.1	178.2	17.0	6 368	5 443	5 287	6 674	6 779
Hopkins	789	2 044	25 247	32.0	12.4	21.9	11.4	20 710	18 594	23 490	30 274	29 410
Houston	1 234	3 197	22 299	18.1	7.0	24.9	-7.8	17 855	19 376	22 825	31 137	30 017
Howard	901	2 334	33 142	36.8	14.2	-12.3	-5.8	37 796	40 139	26 722	20 990	22 888
Hudspeth	4 566	11 827	2 728	0.6	0.2	14.0	-28.4	2 392	3 343	4 298	3 149	3 728
Hunt	840	2 176	55 248	65.8	25.4	15.2	21.7	47 948	39 399	42 731	48 793	49 016
Hutchinson	871	2 257	26 304	30.2	11.7	7.5	-29.0	24 443	34 419	31 580	19 069	14 848
Irion	1 052	2 724	1 386	1.3	0.5	29.5	-9.6	1 070	1 183	1 590	1 963	2 049
Jack	920	2 382	7 408	8.1	3.1	10.4	-9.5	6 711	7 418	7 755	10 206	9 046
Jackson	844	2 185	13 352	15.8	6.1	[illegible]	-7.6	12 975	14 040	12 916	11 720	10 980
Jasper	921	2 386	30 781	33.4	12.9	24.7	11.7	24 692	22 100	20 049	17 491	17 064
Jeff Davis	2 258	5 847	1 647	0.7	0.3	[illegible]	-3.5	1 527	1 582	2 090	2 375	1 800
Jefferson	937	2 428	250 938	267.8	103.4	1.8	0.3	246 402	245 659	195 083	145 329	133 391
Jim Hogg	1 136	2 943	5 168	4.5	1.8	11.0	-7.3	4 654	5 022	5 389	5 449	4 919
Jim Wells	867	2 245	36 498	42.1	16.3	10.5	-4.4	33 032	34 548	27 991	20 239	13 456
Johnson	731	1 892	67 649	92.5	35.8	47.8	31.8	45 769	34 720	31 390	30 384	33 317
Jones	931	2 410	17 268	18.5	7.2	7.2	-16.5	16 106	19 299	22 147	23 378	24 233
Karnes	753	1 951	13 593	18.1	7.0	1.0	-10.2	13 462	14 995	17 139	19 248	23 316
Kaufman	788	2 042	39 015	49.5	19.1	20.4	8.2	32 392	29 931	31 170	38 308	40 905
Kendall	663	1 717	10 635	16.0	6.2	52.7	18.3	6 964	5 889	5 423	5 080	4 970
Kenedy	1 389	3 598	543	0.4	0.2	-19.9	-23.3	678	884	632	700	701
Kent	878	2 275	1 145	1.3	0.5	-20.2	-17.0	1 434	1 727	2 249	3 413	3 851
Kerr	1 107	2 867	28 780	26.0	10.0	47.9	15.8	19 454	16 800	14 022	11 650	10 151
Kimble	1 250	3 237	4 063	3.3	1.3	4.1	-1.0	3 904	3 943	4 619	5 064	4 119
King	914	2 367	425	0.5	0.2	-8.4	-27.5	464	640	870	1 066	1 193
Kinney	1 359	3 519	2 279	1.7	0.6	13.6	-18.2	2 006	2 452	2 668	4 533	3 980
Kleberg	853	2 209	33 358	39.1	15.1	0.6	10.4	33 166	30 052	21 991	13 344	12 451
Knox	845	2 189	5 329	6.3	2.4	-10.8	-24.0	5 972	7 857	10 082	10 090	11 368
Lamar	919	2 381	42 156	45.9	17.7	16.9	5.3	36 062	34 234	43 033	50 425	48 529
Lamb	1 013	2 623	18 669	18.4	7.1	5.1	-18.8	17 770	21 896	20 015	17 606	17 452
Lampasas	714	1 850	12 005	16.8	6.5	28.8	-1.0	9 323	9 418	9 929	9 167	8 677
La Salle	1 517	3 929	5 514	3.6	1.4	10.0	-16.0	5 014	5 972	7 485	8 003	8 228
Lavaca	971	2 515	19 004	19.6	7.6	6.1	-11.3	17 903	20 174	22 159	25 485	27 550
Lee	631	1 634	10 952	17.4	6.7	36.1	-10.1	8 048	8 949	10 144	12 751	13 390
Leon	1 078	2 793	9 594	8.9	3.4	9.8	-12.2	8 738	9 951	12 024	17 733	19 898
Liberty	1 174	3 040	47 088	40.1	15.5	42.6	4.5	33 014	31 595	26 729	24 541	19 868
Limestone	931	2 410	20 224	21.7	8.4	11.7	-11.3	18 100	20 413	25 251	33 781	39 497
Lipscomb	933	2 417	3 766	4.0	1.6	8.0	2.3	3 486	3 406	3 658	3 764	4 512
Live Oak	1 057	2 737	9 606	9.1	3.5	43.4	-14.6	6 697	7 846	9 054	9 799	8 956
Llano	939	2 432	10 144	10.8	4.2	45.4	33.2	6 979	5 240	5 377	5 996	5 538
Loving	671	1 737	91	0.1	0.1	-44.5	-27.4	164	226	227	285	195
Lubbock	900	2 331	211 651	235.2	90.8	18.0	14.7	179 295	156 271	101 048	51 782	39 104
Lynn	888	2 300	8 605	9.7	3.7	-5.5	-16.6	9 107	10 914	11 030	11 931	12 372
McCulloch	1 071	2 775	8 735	8.2	3.1	1.9	-2.8	8 571	8 815	11 701	13 208	13 883
McLennan	1 031	2 669	170 755	165.6	64.0	15.7	-1.7	147 553	150 091	130 194	101 898	98 682
McMullen	1 163	3 012	789	0.7	0.3	-27.9	-1.9	1 095	1 116	1 187	1 374	1 351
Madison	473	1 224	10 649	22.5	8.7	38.4	14.0	7 693	6 749	7 996	12 029	12 227
Marion	385	997	10 360	26.9	10.4	21.6	5.8	8 517	8 049	10 172	11 457	10 371
Martin	914	2 367	4 684	5.1	2.0	-1.9	-5.8	4 774	5 068	5 541	5 556	5 785
Mason	934	2 418	3 683	3.9	1.5	9.7	-11.2	3 356	3 780	4 945	5 378	5 511
Matagorda	1 127	2 919	37 828	33.6	13.0	35.5	8.4	27 913	25 744	21 559	20 066	17 678
Maverick	1 287	3 333	31 398	24.4	9.4	73.5	24.7	18 093	14 508	12 292	10 071	6 120
Medina	1 331	3 448	23 164	17.4	6.7	14.4	7.1	20 249	18 904	17 013	16 106	13 989
Menard	902	2 337	2 346	2.6	1.0	-11.3	-10.7	2 646	2 964	4 175	4 521	4 447
Midland	902	2 335	82 636	91.6	35.4	26.3	-3.4	65 433	67 717	25 785	11 721	8 005
Milam	1 019	2 639	22 732	22.3	8.6	13.5	-10.0	20 028	22 263	23 585	33 120	37 915
Mills	748	1 938	4 477	6.0	2.3	6.3	-5.7	4 212	4 467	5 999	7 951	8 293
Mitchell	912	2 363	9 088	10.0	3.8	0.2	-19.4	9 073	11 255	14 357	12 477	14 183
Montague	928	2 403	17 410	18.8	7.2	13.6	2.9	15 326	14 893	17 070	20 442	19 159
Montgomery	1 047	2 713	128 487	122.7	47.4	159.7	84.4	49 479	26 839	24 504	23 055	14 588
Moore	905	2 343	16 575	18.3	7.1	17.9	-4.8	14 060	14 773	13 349	4 461	1 555
Morris	256	663	14 629	57.1	22.1	18.8	-2.1	12 310	12 576	9 433	9 810	10 028
Motley	959	2 483	1 950	2.0	0.8	-10.5	-24.1	2 178	2 870	3 963	4 994	6 812
Nacogdoches	939	2 433	46 786	49.8	19.2	28.7	29.7	36 362	28 046	30 326	33 392	30 290
Navarro	1 068	2 767	35 323	33.1	12.8	13.4	-9.5	31 150	34 423	39 916	51 308	60 507
Newton	935	2 422	13 254	14.2	5.5	13.7	12.4	11 657	10 372	10 832	13 700	12 524
Nolan	915	2 369	17 359	19.0	7.3	7.0	-14.5	16 220	18 963	19 808	17 309	19 323
Nueces	847	2 195	268 215	316.7	122.2	12.9	7.2	237 544	221 573	165 471	92 661	51 779
Ochiltree	919	2 380	9 588	10.4	4.0	-1.2	3.5	9 704	9 380	6 024	4 213	5 224
Oldham	1 485	3 846	2 283	1.5	0.6	1.1	17.1	2 258	1 928	1 672	1 385	1 404
Orange	362	938	83 838	231.6	89.4	17.8	17.9	71 170	60 357	40 567	17 382	15 149
Palo Pinto	949	2 458	24 062	25.4	9.8	-16.9	41.2	28 962	20 516	17 154	18 456	17 576
Panola	812	2 102	20 724	25.5	9.9	30.4	-5.8	15 894	16 870	19 250	22 513	24 063
Parker	902	2 337	44 609	49.5	19.1	31.6	48.1	33 888	22 880	21 528	20 482	18 759

...ble 2. Land Area and Population: 1930 to 1980—Con.

[Counts relate to counties as defined at each census. For meaning of symbols, see introduction]

Counties	1980 land area: Square miles	Square kilometers	Population 1980: Number	Per square mile	Per square kilometer	Percent change 1970 to 1980	Percent change 1960 to 1970	1970	1960	1950	1940	1930
...mer	885	2 291	338	2.5	8	[illegible]	7.1	509	583	787	890	5 869
...os	4 776	2 371	4 618	[illegible]	1	3	5.0	748	957	939	3 185	7 812
...	761	749	24 407	23.0	9	58.8	3	4 457	3 861	5 194	20 635	17 555
...ter	902	2 336	98 637	99.4	42.2	[illegible]	-21.7	90 511	15 580	366	54 265	46 080
...dio	3 857	990	188	[illegible]	[illegible]	[illegible]	-11.3	842	460	354	0 925	0 154
...ns	243	629	4 839	19	7	29.0	25.4	752	993	4 266	334	7 114
...dall	917	2 376	75 062	81.9	31.6	39.3	58.9	53 885	33 913	3 774	185	7 071
...gan	173	039	4 135	3.5	4	27.7	-14.4	239	3 782	3 127	997	3 028
...al	697	806	2 469	3.5	4	22.7	-3.2	2 013	2 079	2 479	2 420	2 197
... River	1 054	2 729	6 101	5.3	5.9	12.6	-8.8	4 298	5 682	21 851	29 769	30 923
...eves	2 626	6 802	15 801	6.0	2.3	-4.4	-6.3	16 526	17 644	11 745	8 006	6 407
...ugio	771	1 997	9 289	12.0	4.7	-2.2	-13.5	9 494	10 975	10 113	10 383	7 691
...berts	915	2 369	187	3	3.5	22.8	-10.0	967	1 075	1 031	1 289	1 457
...bertson	864	2 237	14 653	7.0	5.6	1.8	-10.9	14 389	16 157	9 908	25 710	27 240
...ckwall	128	332	14 528	113.5	43.8	106.2	19.9	7 046	5 878	6 156	7 051	7 658
...nnels	1 056	2 734	11 872	11.2	4.3	-1.9	-19.4	12 108	15 016	16 771	18 903	21 821
...sk	932	2 415	41 382	44.4	17.1	21.3	-6.4	34 102	36 421	42 348	51 023	32 484
...bine	486	1 258	8 702	17.9	6.9	21.1	-1.6	7 187	7 302	8 568	10 896	11 998
...n Augustine	524	1 357	8 785	16.8	6.5	11.8	1.8	7 858	7 722	8 837	12 471	12 471
...n Jacinto	572	1 482	11 434	20.0	7.7	70.6	8.9	6 702	6 153	7 172	9 056	9 711
...n Patricio	693	1 795	58 013	83.7	32.3	22.7	5.0	47 288	45 021	35 842	28 871	23 836
...n Saba	1 136	2 943	6 204	5.5	2.1	12.0	-13.2	5 540	6 381	8 666	11 012	10 273
...hleicher	1 309	3 391	2 820	2.2	0.8	23.8	-18.4	2 277	2 791	2 852	3 083	3 166
...urry	900	2 332	8 192	20.2	7.8	15.4	-22.6	5 760	20 369	22 779	11 545	12 188
...ackelford	915	2 369	3 915	4.3	1.7	17.8	-16.7	3 323	3 990	5 001	6 211	6 695
...elby	791	2 048	23 084	29.2	11.3	17.3	-3.9	19 672	20 479	23 479	29 235	28 627
...erman	923	2 390	3 174	3.4	1.3	-13.2	40.4	3 657	2 605	2 443	2 026	2 314
...	932	2 415	128 366	137.7	53.2	32.2	12.4	97 096	86 350	74 701	69 090	53 123
...mervell	188	488	2 154	22.1	8.5	48.7	3.4	2 793	2 577	2 542	3 071	3 016
...rr	1 226	3 175	27 266	22.2	8.6	54.0	3.3	17 707	17 137	13 948	13 312	11 409
...ephens	894	2 315	9 926	11.1	4.3	18.0	-5.3	8 414	8 885	10 597	12 356	16 560
...rling	923	2 390	1 206	1.3	0.5	14.2	-10.3	1 056	1 177	1 282	1 404	1 431
...newall	925	2 396	2 406	2.6	1.0	0.4	-20.6	2 397	3 017	3 679	5 589	5 667
...tton	1 455	3 768	5 130	3.5	1.4	61.6	-15.1	3 175	3 738	3 746	3 977	2 807
...isher	902	2 336	9 723	10.8	4.2	-6.3	-2.2	10 373	10 607	8 249	6 528	7 343
...rrant	868	2 248	860 880	991.8	383.0	20.3	32.9	715 587	538 495	361 253	225 521	197 553
...ylor	917	2 375	110 932	121.0	46.7	13.4	-3.2	97 853	101 078	63 370	44 147	41 023
...rell	2 357	6 105	1 595	0.7	0.3	-17.8	-25.4	1 940	2 600	3 189	2 952	2 660
...ry	886	2 296	14 581	16.5	6.4	3.3	-13.3	14 118	16 286	13 107	11 160	8 883
...rockmorton	912	2 363	2 053	2.3	0.9	-6.9	-20.3	2 205	2 767	3 618	4 275	5 253
...s	412	1 068	21 442	52.0	20.1	28.4	-0.5	16 702	16 785	17 302	19 228	16 003
... Green	1 515	3 923	84 784	56.0	21.6	19.3	9.9	71 047	64 630	58 929	39 302	36 033
...is	989	2 562	419 573	424.2	163.8	42.0	39.3	295 516	212 136	160 980	111 053	77 777
...ity	692	1 791	9 450	13.7	5.3	23.9	1.2	7 628	7 539	10 040	13 705	13 637
...r	922	2 389	16 223	17.6	6.8	30.7	16.4	12 417	10 666	11 292	11 948	11 448
...hur	587	1 521	28 595	48.7	18.8	36.3	6.0	20 976	19 793	20 822	26 178	22 297
...on	1 243	3 220	4 619	3.7	1.4	-1.7	-24.7	4 697	6 239	5 307	4 297	5 968
...lde	1 564	4 052	22 441	14.3	5.5	29.4	3.2	17 348	16 814	16 015	13 246	12 945
... Verde	3 150	8 158	35 910	11.4	4.4	30.7	12.3	27 471	24 461	16 635	15 453	14 924
... Zandt	855	2 214	31 426	36.8	14.2	41.8	16.0	22 155	19 091	22 593	31 155	32 315
...oria	887	2 297	68 807	77.6	30.0	28.0	15.7	53 766	46 475	31 241	23 741	20 048
...ker	786	2 036	41 789	53.2	20.5	51.0	28.9	27 680	21 475	20 163	19 868	18 528
...er	514	1 331	19 798	38.5	14.9	38.6	18.3	14 285	12 071	11 961	10 280	10 014
...d	836	2 164	13 976	16.7	6.5	7.4	-12.7	13 019	14 917	13 346	9 575	4 599
...hington	610	1 580	21 998	36.1	13.9	16.7	-1.6	18 842	19 145	20 542	25 387	25 394
...b	3 363	8 709	99 258	29.5	11.4	36.2	12.5	72 859	64 791	56 141	45 916	42 128
...rton	1 086	2 814	40 242	37.1	14.3	9.6	-3.7	36 729	38 152	36 077	36 158	29 681
...eler	905	2 343	7 137	7.9	3.0	10.9	-19.0	6 434	7 947	10 317	12 411	15 555
...ita	606	1 570	121 082	199.8	77.1	0.4	-2.4	120 563	123 528	98 493	73 604	74 416
...arger	947	2 453	15 931	16.8	6.5	3.8	-13.5	15 355	17 748	20 552	20 474	24 579
...cy	589	1 526	17 495	29.7	11.5	12.4	-22.5	15 570	20 084	20 920	13 230	10 499
...amson	1 137	2 944	76 521	67.3	26.0	105.1	6.5	37 305	35 044	38 853	41 698	44 146
...n	807	2 089	16 756	20.8	8.0	28.5	-1.7	13 041	13 267	14 672	17 066	17 606
...ler	840	2 175	9 944	11.8	4.6	3.2	-29.4	9 640	13 652	10 064	6 141	6 784
...	902	2 337	26 575	29.5	11.4	35.0	15.7	19 687	17 012	16 141	19 074	19 178
...d	689	1 784	24 697	35.8	13.8	32.9	5.3	18 589	17 653	21 308	24 360	24 183
...um	800	2 072	8 299	10.4	4.0	13.0	-8.6	7 344	8 032	4 339	5 354	1 263
...g	919	2 380	19 083	[illegible]	8.0	23.9	-10.7	15 400	17 254	16 810	19 004	20 128
...ta	999	2 587	6 628	6.6	2.6	52.3	-0.9	4 352	4 393	4 405	3 916	2 867
...a	1 298	3 363	11 666	9.0	3.5	2.6	-10.4	11 370	12 696	11 201	11 603	10 349

REFERENCE 13

United States Department of the Interior

GEOLOGICAL SURVEY

WATER RESOURCES DIVISION
2320 LaBranch St., Rm. 1112
Houston, Texas 77004

January 12, 1989

Kelly Bowles
Ecology and Environment
Suite 1400
1509 Main St.
Dallas, TX 75201

Dear Ms. Bowles:

Enclosed are tables of available daily mean discharge data at U.S.G.S. gaging station 08073700, Buffalo Bayou at Piney Point, TX.

Sincerely,

J. C. Fisher
Supervisory Hydrologist
Houston Subdistrict, WRD

JCF/bdp
Enclosures

INTERIOR - GEOLOGICAL SURVEY -

STATION NUMBER 08073700 BUFFALO BAYOU AT PINEY POINT, TX STREAM
LATITUDE 294448 LONGITUDE 0953124 DRAINAGE AREA 317.00 DATUM
PROVISIONAL DATA

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	135	78	145	260	84	58	163	117
2	107	78	120	206	70	285	117	270
3	88	73	105	155	66	211	88	676
4	90	77	95	140	64	100	275	672
5	83	77	90	127	112	56	733	647
6	80	77	114	171	105	58	707	260
7	77	79	300	630	95	60	676	83
8	78	92	305	477	83	66	635	74
9	78	221	195	369	74	59	483	72
10	77	150	130	216	66	55	315	70
11	77	101	113	174	64	e54	102	66
12	78	85	101	157	63	e55	76	71
13	78	83	94	147	60	e63	71	67
14	77	79	88	142	61	e50	66	65
15	77	146	90	134	60	e49	63	64
16	77	658	85	166	59	e46	e79	65
17	77	455	82	162	59	585	92	64
18	77	362	83	138	132	1170	82	61
19	77	172	620	124	103	631	70	58
20	78	116	662	113	71	593	e60	60
21	77	94	1290	100	61	565	e59	283
22	77	86	491	e95	59	307	e58	303
23	86	85	725	e89	59	123	e55	120
24	108	82	680	e83	57	101	e52	82
25	89	494	649	e78	55	101	e48	67
26	82	445	625	e74	54	164	e46	60
27	80	559	834	e72	58	336	e48	58
28	78	444	637	74	60	219	55	54
29	84	294	549	68	69	141	700	62
30	77	181	335	67	---	746	447	64
31	78	---	213	67	---	741	---	65
TOTAL	2591	6028	10645	5075	2083	7865	6521	4800
MEAN	83.6	201	343	164	71.8	254	217	155
MAX	135	658	1290	630	132	1170	733	676
MIN	77	77	82	67	54	46	46	54
AC-FT	5140	11960	21110	10070	4130	15600	12930	9520

YR 1987 TOTAL 116651 MEAN 320 MAX 1890 MIN 50 AC-FT 231400
YR 1988 TOTAL 59405 MEAN 162 MAX 1290 MIN 46 AC-FT 117800

e Estimated

POINT, TX STREAM SOURCE ENCY USGS
217.00 DATUM STATE 48 COUNTY 201
SUBJECT TO REVISION
AR OCTOBER 1987 TO SEPTEMBER 1988
S

APR	MAY	JUN	JUL	AUG	SEP
163	117	64	52	108	69
117	270	62	57	197	71
88	576	779	53	284	98
275	572	103	110	233	[illegible]
733	647	107	167	180	61
707	260	252	124	155	59
676	83	533	90	140	57
635	74	300	82	150	52
483	72	114	81	119	52
315	70	69	75	318	51
102	66	60	71	507	49
76	71	55	67	399	71
71	67	56	63	306	72
66	65	56	60	140	66
63	64	57	68	104	74
e79	65	59	58	89	67
92	64	59	57	79	91
82	61	57	57	79	113
70	58	55	170	125	76
e60	60	87	97	126	57
e59	283	173	127	118	54
e58	303	114	133	96	51
e55	120	93	112	97	50
e52	82	76	102	89	51
e48	67	197	89	72	50
e46	60	83	96	65	54
e46	58	72	98	60	52
55	54	78	120	58	51
700	62	71	103	139	54
447	64	65	93	127	280
---	65	---	83	91	---
6521	4800	4006	2825	4850	2116
217	155	134	91.1	156	70.5
733	676	779	170	507	280
46	54	55	53	58	49
12930	9520	7950	5600	9620	4200

231400
117800

RECORD OF COMMUNICATION	(Record of Item Checked Below) _X_ Phone Call ___ Discussion ___ Field Trip ___ Conference ___ Other(Specify)	
TO: Henery Flemming Technician ACOE Galveston District (409) 766-3076	From: Brian Boerner, FIT Chemist Brian Boerner	Date: 1/10/89 Time: 1243

SUBJECT: Flood Plains of Houston

SUMMARY OF COMMUNICATION

Area around 800 N. Velasco is in zone C, which is out of the floodplain.

Info. from FIRM; Map Panel # 480296-0125-6, September 27, 1985.

Map being sent to FIT office (see attachment).

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

0 4 6 8

RECORD OF COMMUNICATION	(Record of Item Checked Below) _X_ Phone Call ___ Discussion ___ Field Trip ___ Conference ___ Other(Specify)	
TO: Eddie Elliott TWC Deer Park, TX (713) 479-5981	From: Frances Verhalen, *[signature]* FIT Environmental Scientist	Date: 1/3/89 Time: 3:45pm

SUBJECT: TWC Regulatory History of Lead Products Company

SUMMARY OF COMMUNICATION

Lead Products Co., Inc., Childs Trucking Equipment Co., and KNUZ Radio Tower sites are considered to be one site by the TWC. The site is listed as Lead Products Co., Inc.

Lead Products is a currently active recycler of lead. The lead is made into pipes from tire weights. Previously, lead was obtained from cracking batteries. The battery cases were allegedly buried from approximately 1935 to 1975 in a pit with approximate dimensions of 150 by 100 by 20 feet on the Lead Products and former Child's Trucking Equipment Co. properties. A portion of the property is now owned by the City of Houston and was used for trash incineration by the city at one time.

No official litigation against the site by the TWC or the city has begun. The Lead Products owners have begun negotiations with the city and TWC and are currently collecting soil samples for analysis. Tona Vaca (713) 520-9030 from ERT (now ENSR Construction) is the project officer for the current sample collection.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

0469